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EDITORIAL CONTENTS

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FEATURE ARTICLES

| We Took Care of Our Tires and Cut Ti | heir | Cos | 82% |
|---------------------------------------|------|------|-----|
| Driving With Death | | | |
| Bear Down On Bearing Maintenance . | | | |
| How Hoosiers Handle Driver Safety . | | | |
| Keep Costs and Beat the 'Rap' | | | |
| Truckers Must Learn to Sell | | | |
| The Album | | | |
| Truck Lubrication Specifications | | | |
| Eyeing the Big Service Show for Fleet | Ide | as . | |
| Trucks Can Be Modernized | | | |

DESCRIPTIONS

| Dodge Features Smarter Styling | |
|---------------------------------------|-------------|
| IHC Adds 6-Wheel and 2-Speed | Axle Jobs 3 |
| New Van Trailer Saves on Wei | ght 3 |
| New Flare Develops Own Elec | ctricity 3 |
| Federal Small '4' Stresses Econo | my 3 |

DEPARTMENTS

| The Overload | |
|--|-----|
| Ears to the Ground | |
| After Hours | 23 |
| News | 44 |
| The state of Brossmanning of the state of th | 46 |
| Free Money Makers for You | |
| Advertisers' Index | 108 |

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TEXACO

COMMERCIAL CAR JOURNAL



The Overload

Happy New Year!

WE ring in 1936, which is certain to be an eventful year, with an appeal to reason. It's an editorial, it's on page 23, and it calls for a word of explanation. Political inferences may be drawn from our appeal, but we want it understood that we are not in the sordid business of playing partisan politics. We are, however, interested in promoting the welfare of our 30,000 and more readers. And when that welfare is jeopardized by the impositions of politicians and the propositions of social fanatics, we shall consider it our duty to stir our readers to some show of resentment in their own behalf. In doing so we will deal with principles and not political parties or partisan politics.



THE editorial highlight of this issue is a first-time anywhere tabulation of "Truck Lubrication Specifications." You'll want to hold on to it. The specifications are those recommended by the truck makers. In the way of maintenance you'll find one on tires and another on connecting rod bearings that will give you new things to think about. And for a Mach Miles Man

In order not to spoil the attractive appearance of its business coupes by cluttering up cars with a ladder and advertising displays, Hage's Ice Cream Co., San Diego, Cal., had special cabinets built into the rear compartments (top) where counter signs and displays are neatly and safely kept. Detachable carrier arms resting in sockets clamped to the rear bumper make the best of the ladder situation as witness the above picture. Coupe by Plymouth

down-right thrill we recommend "Driving With Death." It's a story about the most hazardous truck-driving assignment in the world. You're to consider these few mentions as appetizers and wine of a full-course banquet (we've Christmas dinner on the brain). The turkey and side dishes you'll find easily enough. But don't look for stuffing.



When B. E. Bridges Co., Goodland, Kan., sent out a flash (B.E.B.) broadcasting its intention of acquiring a new fleet of trucks, Diamond T errived on the scene first under full throttle. Here are some of the trucks lined-up for streamlined action (150 to 175 miles per day of it) equipped with special insulated bodies built by Indiana Carriage Co., Kansas City, and W. E. Soldner, of Salina, Kan.

Contest! Contest!!

ALL men connected with truck fleets are invited to take part in a name contest. The details are on pages 54 and 55. Our interest is easily explained. The editor of COMMERCIAL CAR JOURNAL is one of the two judges who will decide the winner. Naturally, he's rooting for a slew of suggestions, because it will make his task easier. Quantity will increase the chances of getting a suggestion that "clicks" immediately. That will save head work. Beside a chance at the prizes you will get three sets of decalcomania initials (your initials) free.

\$425 On Account

WHILE lunching the other day at the expense of Dodge Brothers (thanks, Joe) an amusing tale of railroad retribution was told us by a Gar-Wood salesman. One of his clients in the Pennsylvania coal region had an accident in which a truck and tank trailer combination went over an

m.

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ets

THE OVERLOAD

embankment and landed across a railroad track. The railroad got its wrecking crew busy and charged the trucker \$85 per hour for 5 hours' work. "That's getting back at me," said the trucker, "for the business I've taken away from them."

North Carolina Note

BACK in November we gave you a Size and Weight Chart correction for six-wheel trucks registered in North Carolina. After an exhaustive exchange of correspondence with authorities we give you now a correction of the correction. It is true that the Attorney General has ruled that 38,000 lb. gross is the legal limit for a three-axle vehicle, but the Motor Vehicle Department insists that it will be okay with them if such a unit grosses 40,000 lb. If the M. V. D. is willing to take the rap, who are we—or truck operators—to overlook the 2000 lb.

Find the Moral

DID you get your story-telling packet of matches from the Standard Oil Co? The story was told by their friction strips which were made from abrasives taken from oil drains. Seven hundred cars of various makes and ages, using many different makes and grades of oil, contributed the drains. Tests showed that enough harmful abrasive—mostly sand and metal particles—accumulated in the average 1000-mile, 6-qt. crankcase drain to make the friction strips for 2300 packets of matches. The quantity is .49 cu. in, if you want to be more exact than impressed.

Statistical Paen (Not Pain)

MORE motor trucks were in use in 1935 in the U. S. than ever before. Total registration, according to advance figures just received from the Automobile Manufacturers Association (NACC to those who can't change the habit), were 3,550,000. That's a 4 per cent gain over 1934. The previous high was registered in 1930 when the total was 3,486,019. Production for 1935 was 750,000, an increase over 1934 of 25 per cent. The production record is still held by 1929 with 826,817 units. We have no beard



Martin Pulcher, president of Federal Motor Truck Co., cuts himself a slice from the birthday cake presented to him in behalf of the 300 dealers and salesmen who attended Federal's silver anniversary in Detroit



Johns-Manville will send this unit out on the highways beginning this month to carry a graphic message of safety to car owners, brake mechanics and brake service stations throughout the country. The interior is fitted with safety school apparatus and braking equipment. Visitors will enter through a door on the side and exit through the rear of the 25-ft. Fruehauf trailer. The tractor is a Ford

to hide behind, but we don't mind making the open-faced prophecy that 1936 will cop the production record.

Trucks of Yesteryear

MEANWHILE there are a lot of trucks of today and of yesterday to be replaced. Addressing a dealer meeting, Dodge's Joe Burke figured the replacement market at 1,401,076 trucks. Of this number, 888,551 are seven to 10 years old; 385,528 are over 10 years old, and 126,997 are too old to tabulate. That's one reason why we weren't afraid to stick our neck out just a paragraph ago.

Headache for Railroads

TRANSPORTATION men are watching with interest the long-distance hauling tests being made by Keeshin Transcontinental Freight Lines, Inc., of Chicago. In the first test five tractors, drawing as many 10-ton trailers, made the 2391 miles to Los Angeles in 4 days, 12 hr., 4 min. A sleeping car went along for relief drivers. Railway deliveries are usually scheduled for the morning of the seventh day. The next test will be from Los Angeles to New York.

Books on Regulation

HE book review bureau of this department acknowledges receipt of two just-out books dealing with motor carrier regulation. The bulkier one, entitled "Federal Motor Carrier Regulation," gives an analysis and annotated interpretation of the Federal Motor Carrier Act of 1935. The price is \$4. The publisher is The Traffic Publishing Co., 100 Sixth Ave., New York City. The other is "A Legislative History of the Motor Carrier Act, 1935." The history includes those parts of the congressional debate which help to clarify the meaning and intent of various provisions. It includes a list of State and Federal Court decisions on State motor carrier legislation. Published by H. C. Cecil, Investment Building, Washington, D. C. \$2.75.

For Collectors

IF you are a collector of samples—and who isn't—there are several interesting offers in this issue. For instance, there are the offers of The Hygienic Products Co., and Felt Products Mfg. Co. Look them up in the advertisers' index. Perchance you may be interested.

Ears to the Ground



The commonplace coal truck is undergoing face-lifting operations. Here is one result. The body on a 118-in. Hendrickson chassis has a capacity of 13.5 cu. yd. The front corners, top of the sides and the top of the rear are rounded. The tailgate is flush with the rear. The skirt and fenders are integral with the body and rise with it when Woods' mechanical hoist lifts the body built by Jacob Press' Sons, Chicago. The sides present a splendid straight panel for advertising instead of the conventional cross brace and angle iron constructed surface



There is a new mercury tube circuit breaker that can be installed on trucks to prevent fire in case of an overturn. The switch automatically shuts off the ignition when the truck reaches a critical angle in the process of turning over on its side. It is said that underwriters favor it to the extent of granting premium reductions on cargo insurance when trucks are so equipped. Check the coupon for advance details.

Inspection Interlude

By about the middle of the year one of the larger automotive companies expects to have a monthly inspection service in full bloom. The inspection service will be offered to truck operators, fleet or otherwise, at \$1 per truck per month. If the vehicle needs work the dollar can apply on the cost of repairing. The outlets permitted to join this inspection service will be equipped with frame and front-axle alignment equipment, complete brake testing equipment and, it is hinted, dynamometers. The service, if present plans mature, will be conducted on a national basis and will include vehicles of any make or vintage.

To Tame Trailer Brakes

A dashboard control which makes it possible to regulate braking effort to the trailer brakes will soon be available. The purpose will be to balance the brake for varying trailer loads so that the brakes on the empty trailer will not lock in advance of the tractor brakes.

Dodge Denies Diesels

The counter-espionage service of this department learned from authoritative sources that there is no truth in the New York Press Bureau report that Dodge will offer a diesel truck within 30 days. Dodge does not even sell a chassis for a diesel

engine, but has, of course, been experimenting for two years with a diesel engine.

Difficulty of a Diesel Filter

One of our better known oil filter companies is working on a filter for diesel engines. Our field spy from that area reports that new problems arise when lubricating oil of one base and fuel oil of another are used in a diesel engine. It seems that the two get together and strange things happen which make new demands on the filter.

Tractor-Trailer Tests

An avalanche of tests of tractor-trailer operation will soon roll over the nation's highways. One, in the nature of a maiden voyage from Chicago to the Pacific coast and return, will be completed by the time you read these lines. Others are in the formative and tentative stages with manufacturers eager to be sponsors if there is any indication that the operating fraternity is interested.

Two-Speed for Tons and Tons

Authoritatively we are informed that Eaton has ready a heavier version of its new two-speed axle for trucks of larger

Dash control regulates trailer brakes





INFORMATION WHICH IS INSIDE, ADVANCE OR JUST UNUSUAL

tonnages. Truck makers report satisfaction with the two-speed axle idea. Experience on the heavier unit will doubtless duplicate that of the lighter job, with some truck makers making it standard and others optional.

Shop Equipment for Fleets

A new Porto Power outfit designed for fleet use is the recognition the fleet industry gets from Blackhawk. The assortment of tools includes a 20-ton ram for axle straightening or whatever job that requires 20 tons of power or less.

Mack Matters

Although this department's information does not come from an "official spokesman" it comes from what the newspapers would describe as an "authoritative source." The net result is this: the Mack Jr. line will consist of four models ranging in gross weights from 10,000 lb. to 13,500 lb. and, 'tis said, a bus chassis. One of the truck models, probably a companion to the largest conventional model, is to be a "traffic type." And, are you ready?—the price range will be from slightly over \$500 to slightly over \$1500.

FREE

Check and mail to The Editor, Commercial Car Journal, Philadelphia, Pa.

- ☐ A—Copyrighted chart of state lighting laws.
- ☐ B—Motor Overhaul Check Book. 16-page servicing manual.
- C—Nine technical bulletins dealing with colloidal graphite.
- D—Pheoll Screws, Nuts, Bolts catalog. 101 pp.
- ☐ E—Dope on overturn switch.
- ☐ F—Trailer brake regulator details.

Firm Name

No. Trucks Operated No. Cars

JANUARY, 1936



We Took Care And Cut Their

just a systematic inspection that involves a very simple but effective routine rigidly adhered to.

Tire inspection is no small chore with our fleet of 115 trucks, ranging from six to 10-ton capacity, and an equal number of six-wheel trailers. With each of these units representing 22 tires on the ground and two spares each, the rubber investment per unit warrants all the attention necessary to prolong the life of tires, as well as to

Our company operates along the North Pacific Coast from Bellingham, Wash., to Portland, Ore. Maintenance headquarters is in Seattle, but the 700-mile route of travel makes four branch service stations necessary, and of course that makes maintenance a little more involved than it would be if all service work were centralized.

provide safety for equipment, cargo

and driver.

The routine inspection of tires is

endless. It starts with the new tire and follows through until the rubber is in the junk pile. Of course, the first step is to inventory the new tire, give it an identification number, when and where applied, etc. From then on the tire is constantly under the eye of the inspec-

tor, but more especially it is given a thorough going over at least once per month.

There are a thousand and one things about a tire that must be watched with an eagle eye. Mismated tires, tires of uneven wear—these are especially bad

COMMERCIAL CAR JOURNAL

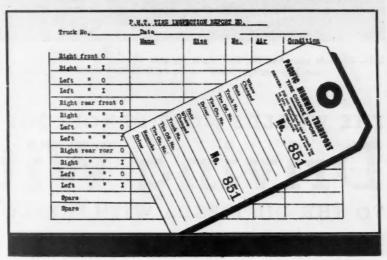
F YOU are a "dividend hunter" (who isn't) here's one sure tire trail to follow that pays a pretty penny and not a pittance. Operator Guichard works the wires and shows how you can make tires pay and pay through systematized inspections. It is a "stitch-in-time" and "inspection-while - the - wheels - are - jacked - up" system that pays him so well. Our feeling is that it will pay you to study his methods which are given in detail in this article.

features on dual wheel operations, to say nothing of imbedded rocks, glass, bruises, small cuts, hollow spots, and the all-important phase of inflation.

Tires on our trucks are inspected for air at every stop, whether it be 50 miles or 100. And we are not satisfied with merely uniform inflation. Tires must conform to the road surface, and as most roads slope outwardly from the center, we find we get more even wearing surface when we inflate the inside tires, that is our standard 975-20 tire, to 75 lb. and put 80 lb. in the outside tires.

As a check on regular inflation of air, we insist that the date, mileage, and initial of the operator be chalked on the tire with yellow crayon after every air test. But drivers and sub-station employees are not depended upon alone for tire inspection. This work is much too important to spread among a large





Top—One of the 22-tired combinations that makes tire maintenance a major matter of pain or profit. Above—Two of the tire forms used by Pacific Transport to take the pain out of tire maintenance. Left—Operator Guichard in his rôle as chief tire inspector

number of employees. The human element of neglect or carelessness is too great. Furthermore, to properly check a tire for all possible defects requires a great deal of specialized knowledge. One expert and myself do all tire inspecting.

About 75 per cent of our trucks are routed through headquarters at some

time during each month, at which time tire inspection is an important part of the general inspection. Once each month the foreman of the tire shop and myself make a trip through the territory to check all trucks not so routed. In addition there are the pick-up wagons at each branch station that never come into headquarters, and this rubber must be checked. This work out of headquarters of inspecting tires requires from three to five full days. But it is worth it. Each tire is sounded for hollow spots, small cuts, bruises, or imbedded foreign material that can be detected only by careful examination. Of course, a report is made on every tire.

We designate the general condition of the tire on this report by code number: No. 1—new tire; No. 2—slightly worn; No. 3—75 per cent worn; No. 4—almost ready for junk pile. One report is made for each truck, giving location of each tire, number identification, name of tire, size, air, condition, etc. All reports are filed. All foremen at branch service stations are given instructions about all tires needing repair. If a tire needs a recap, or a hole plugged, for example, the

(TURN TO PAGE 50, PLEASE)

of Our Tires

Cost 82%

By
A. E. GUICHARD

Maintenance Superintendent,
Pacific Highway Transport Co., Seattle





Left—This hole near Amerillo, Tex., marks the spot where a bit of "soup" blew a truck and driver to uncollectable bits. Louis Calderon (right) can haul enough "soup" in his truck to turn Dallas, Tex. (above) into another hole—somewhat larger, of course

THE WORLD'S MOST DANGEROUS TRUCK DRIVING JOB IS

Driving With Death

TO THE OIL FIELDS WITH "EXPLOSIVE SOUP" FOR WELLS

By Comparison the Average Driver's Job is "Duck Soup" Considering the Risks That Have to Be Taken Dayinand Day Outby Drivers Hauling "Doom Soup"

By A. BRADSHAW

Based on an interview with Louis Calderon, deathdefying explosives truck driver for Hercules Powder Co., Dallas, Tex., and others



OLDING his life in the palm of his hand and daring Fate to make him stub his toe, Louis Calderon has been driving explosives to the Texas oil fields in grim red trucks for

nine years. He has had some narrow escapes that have made him believe that nothing can take you until your time comes. Once his truck turned over loaded with—but Louis doesn't speak of these things. His boss won't let him—in fact, Joe Baldwin and his drivers speak of nitro-glycerin in hushed tones.

Not long ago nitro-glycerin blew up the three Kent brothers at the distributing plant near Electra. No one knew how it happened, for there was no one left to tell the tale. And that was the second time the plant had blown up.

Three years ago a powder plant four miles out of Dallas jarred all Dallas with its explosion. Plate glass windows were broken out of the Holland's magazine publishing plant nearly 12 miles away. So it was throughout the whole city. Plate glass companies did a flourishing business for a few weeks.

Last August, Delmar Knight was torn to bits and four fellow-workers injured for life loading pipe in a junkyard six blocks from the downtown district of Sapulpa, Okla. Knight's companions said he picked up a piece of pipe, threw it into a wheelbarrow and a terrific blast followed. Fred Archer, city officer who investigated the blast, said the explosion undoubtedly was caused by nitro-glycerin, and offered the theory that it probably was hidden there by a burglar who intended using it at a later date. Nitro-glycerin experts confirmed the officer's theory on the cause of the explosion and said a pint was set off.

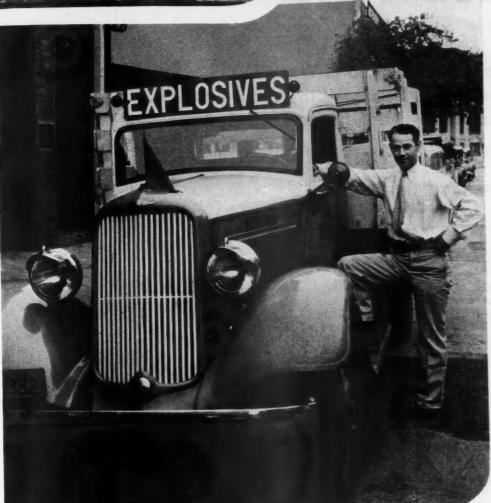
THOSE are typical reasons why nitrodriver Louis hesitates with a deathdefying experience on his tongue to prove himself as daring a truck driver as can be found anywhere in the world. He turns to Joe Baldwin, "Boss, do you think I ought to tell that?"

"No, skip that." The boss adds, "Our business is like the undertaking business. We try to keep the bad aspects hidden. We call our business dynamite and other explosives."

It's people outside the explosive business that give you the highest appreciation of the dangers Louis is facing.

"I was driving along half an hour behind two fellows in a truck between Cisco and Breckenridge," said Ed Hughes, Dallas furniture salesman. "They had passed me while I was making a stop. No one else ever saw them. When I reached the place where they had been, there was a hole big enough for this cafe, and not a sign of the men."

DRIVERS everywhere can take lessons in safe driving from the drivers who haul explosives in the oil fields. With them death takes a Roman holiday if they are in any kind of a collision, and a mild bump jars open the pearly gates. This is an adventure story that you'll enjoy reading and which, if you're wise, you'll pass on to your drivers to show them what a cinch their kind of driving is.



Only recently a beautiful red threeton truck vanished like something in a Grimm's Fairy Tale near Amarillo. It even took with it a set of railroad tracks parallel to the road. Searchers found only a plain black shoe that the truck driver had worn. It didn't afford much of a corpse to send home to a sorrowing bride.

"I saw that truck a few weeks before the accident," said Ike Nihell, Dallas manager for Standard Sanitary Mfg. Co. "The truck was at a filling station in the Panhandle when I stopped there for refueling on a business trip. Weeks later when I again stopped at the same station for refueling, the operator mentioned that the 'soup' truck which had recently been blown to bits near Amarillo was the one that had been in his station when I was there. The report was that the driver had gone to sleep, and driven off into a ditch."

That's one of the big things Louis Calderon has to guard against: going to sleep.

"The less I eat, the better I get along," he explained. "I try to keep from eating when I'm out on a trip because food makes a fellow dull and sleepy. That's one way we differ from other truck drivers. They can speed up

a little on the highways and take a little time out in towns for a cup of coffee and a piece of cocoanut pie, but not us. We not only think it safer not to eat but we are not allowed to stop in towns or go through them unless it is absolutely necessary. You never catch us lingering in towns. We eliminate all possible stops. In every possible case, too, we take outer routes and country roads. This is for public protection. Whenever we have to stop at a filling station, we pull up at one on the outskirts of town."

Runs are not scheduled far in advance. "They don't want the stuff beforehand," Louis said. "It's dangerous to have around. When they do get to it, they need it immediately—often in the middle of the night."

L OUIS listed four major qualifications for a "soup" driver.

1. He must have quick presence of mind. He must

not lose his head at those terrifically frightful moments when a rain-storm comes up, lightning flashes, and the truck filled with liquid death slushes around on muddy country roads and skids on slippery bridges. One misstep, and your chances of seeing the folks at home again are nothing.

2. He must be a sober man. Drinking men can go to a second cocktail party, but one mistake on a "soup"

truck is "curtains."

3. An "explosive" truck driver must have nerves of iron. Louis has never drunk a cup of coffee in his life, and he

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Bear Down On Bearing Maintenance

A Clear and Concise Explanation of What Fleet Shopmen Should and Should Not Do With Connecting Rod Bearings in Modern High-Speed Engines

By HENRY JENNINGS

Technical Editor

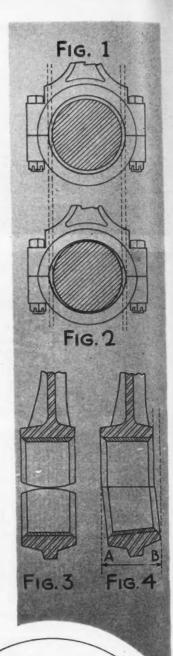
REAL problem faces the mechanic who removes the oil pan from an engine and finds that the bearings need attention. Shall he "take them up" or replace them?

A bit of bearing history, and then we will get to bearing adjustment and specific examples. We will go back to the almost universal acceptance of pressure lubrication—and no further. With pressure lubrication and high-speed, high-output engines, it is necessary to have connecting rod bearings much nearer a 100 per cent fit than it was on the splash-lubricated, slower engines. On the old engines a 60 per cent bearing might hold up indefinitely but new performance brought new requirements in the way of bearings fits.

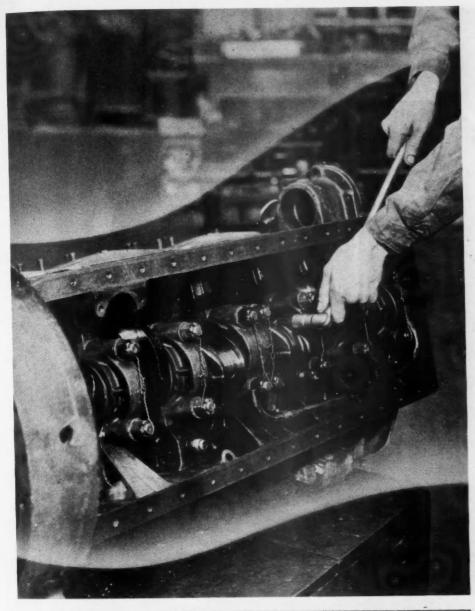
To meet these requirements, bearings cast in the rods and precision insert bearings lined with copper, lead or cadmium alloy were developed. These bearings, for the most part, are manufactured to fit the crankshaft without adjustment. When wear occurs there is only one way to restore the proper clearance and that is to replace the bearing or exchange the rod for a service rod with a new bearing. These new types of bearings were not developed, as some mechanics suspect, to promote the sale of bearings. They are used because they will stand a service that the older type bearings would not stand at all. Incidentally, the older type of bearing was not satisfactorily adjustable but mechanics were able to "get away with it," so to speak, because the demands on bearings were not so great.

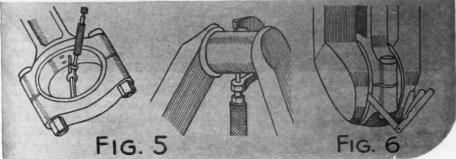
Now let's see things with the eyes of a mechanic lying under the truck. He removes the oil pan and inspects the connecting rod bearings and finds that they are "loose." Here many a

good mechanic gets stampeded into "taking up the bearings." His industry in attempting to save the cost of replacement parts is to be admired but beyond that point he leaves little room for admiration. The bearings were defined as "loose" because that is all that the mechanic knows about them unless he takes steps to find out. In most cases of "taking up bearings" the mechanic takes them up without the slightest idea as to what the clearance between the crankshaft and bearing was when he started or when he finished the job. The terms "loose" and "take up" are not very definite and the work is too often as indefinite as the terms.



MODERN highspeed engines require a modern
approach to the vital subject of
connecting rod bearing maintenance. In former types of engines when wear occurred the
fleet operator had a choice of
"taking up" the bearing or
"replacing". Today, we gather
from engineers, there is really
no choice. And the purpose of
this article is to explain the
troubles that may be expected
if the bearings are "taken up."





Figs. I to 4 show errors resulting from "taking up" connecting rod bearings. Figs. 5 and 6 show methods of measuring bearing conditions. Complete details in article.

A good average figure for clearance between connecting rod and crankshaft is .0015. A safe range for original fit is .0015 to .0025 in. and this clearance cannot be determined from one point on either bearing or crankshaft. The bearing must be checked for roundness and the crankshaft journal must be subjected

to the same scrutiny. This measurement can be made with a telescoping gage and an outside micrometer. The clearance is checked by measuring the crankshaft journal with the outside micrometer and the bearing with a telescoping gage. The difference between these two measurements is the clearance. To determine roundness it

is only necessary to determine that these two measurements are the same from top to bottom and from left to right and through intermediate points. If the clearance reaches or exceeds .005 in. something must be done.

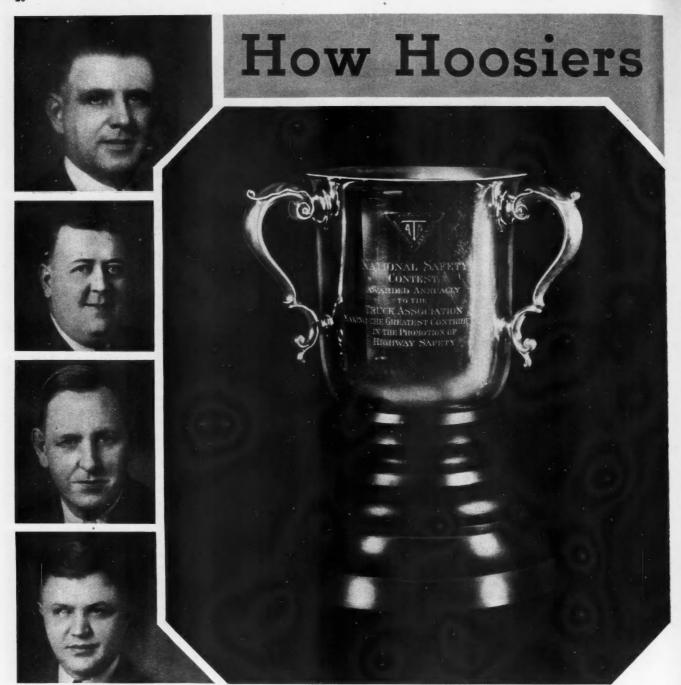
Connecting rod bearings will fail if they are installed in engines where the crankshaft journals are badly worn. It is extremely important that the crankshaft journal be round within .001-.002 in. If it is not there is a long and a short diameter and it is a physical impossibility to have the connecting rod bearing fit both diameters, in fact it is impossible to have it fit the short diameter if the bearing is round.

If the bearing is not round it will have a long and short diameter and as soon as the crankshaft makes a complete revolution it will be necessary that the long diameter of the journal pass through the short diameter of the bearing and that is certainly something to contemplate. If the bearing is round but the journal is oval there will adways be excessive clearance between journal and bearing through the short diameter. For accurate measurement of roundness of connecting rod bearings the Federal-Mogul Corp. has developed a self centering gage with two fixed pins and a movable one.

WHEN the mechanic decides that "taking up" the bearings is the remedy let us see what he actually does. The usual method of "taking up" bearings is to file the bearing cap by the simple process of putting the cap in a vise and taking the

file in both hands and filing both sides of the bearing cap with forward strokes of the file. The result achieved is vastly different than the one expected. Let us illustrate.

Fig. 1 is an illustration of a connecting rod bearing and a crankshaft journal with the clearance between the (Turn to Page 50, Please)





The IMTA won the above trophy for the best state association safety drive. Operators on the Team are (top down): Ray Shook, F&S Transit Co., South Bend, Ind.; D. F. Mitzner, secretary, IMTA; John C. Quinn, W. D. Kibler Trucking Co., Indianapolis; Maurice Tucker, Tucker Freight Lines, South Bend (Pres. IMTA); O. W. Shaw, O. W. Shaw Trucking Service, Indianapolis

HEN the Indiana Motor Traffic Association, Inc., received the loving cup from the American Trucking Associations, Inc., at the Chicago convention last October, as the first and highest safety award to the state trucking association having the best safety record, there was no question but that the award was well earned. The IMTA operated 40,000,000 miles without an accident! And it concluded the best state trucking association safety cam-

paign put on anywhere on Uncle Sam's map in the year of 1935.

How did we do it?

The set-up adopted provided for a small state safety committee to supervise the program, and also a safety director to have charge of the campaign. Maurice Tucker, association president, named Ray Shook, president of the South Bend chapter, as chairman of the committee. Members were: Jack Morgan of Austin, Ind.,

Handle Driver Safety

40 Million Accidentless Miles Are Result of the Indiana Motor Traffic Association's State Drive

now a member of the national safety committee, and John Quinn and O. W. Shaw, both of Indianapolis. State authorities, who have been very helpful in developing our program and very co-operative in safety work, were represented on our state advisory committee by James D. Adams, chairman, and Donald F. Stiver, superintendent of the Indiana Highway Commission; Frank Finney, commissioner of motor vehicles.

Awards authorized were a silver button for six months and a gold button for 12 months of driving without an accident. A bronze button signified enrolment in the contest. The silver lapel buttons were furnished to the employing company at a cost of approximately 75 cents each. The gold lapel buttons cost approximately \$1 each. These awards were presented to drivers by the safety committee when they had established the six or 12-month safety record.

The enrolment fee for each driver was set at 50 cents for six months, if the company was a member of the association; \$1 for each driver for six months if the company was not an association member. Drivers were eligible for the silver or gold awards at the completion of the six or 12 continuous months of safety driving, respectively. The award period began on the date of a driver's registration.

WE followed substantially the National Safety Council rule of charging to every driver every accident in which his vehicle was involved and which resulted in death, personal injury or property damage, save in two cases only. These exceptions are cases in which the driver's truck is hit when legally parked or when it is struck from the rear by a vehicle going in the

same direction. Our feeling is that the extra premium put on alertness and readiness by the driver under this rule more than outweighs the injustice done now and then to an individual man. It has been our observation that most so-called "unavoidable" accidents can be avoided by the exercise of the two qualities we seek by our rule to capitalize and reward. The driver finds himself to be one of an organized movement striving for the same objectives, but he campaigns against himself only, working for a perfect record.

A single accident marred a driver's time record, by depriving him of all time credit previously earned towards the award he was seeking. The driver then had to start a new six or 12-month period, continuing to wear his bronze lapel button to signify that he was enrolled in the safety campaign. But his enrolment fee held good only to the end of the period for which he was originally enrolled. That meant that a driver who had lost his time credit through an accident, must, in order to be eligible for an award, be reenrolled at the expiration of the original period.

F ORMS and materials, together with the bronze "safety entrant" button for the beginning driver, were furnished for the convenience of participating firms. We sought to make the setup as flexible as possible to suit the needs and possibilities of the various firms. The forms were made as simple as possible.

The driver's accident report form was carried by all drivers. They were expected to fill them out after every accident, on the spot, giving all facts asked for. This report was turned in to the company, which in turn forwarded the information on the accident

THE Indiana Motor Traffic Association, Inc., received first prize from the American Trucking Associations, Inc., for being the state trucking association that promoted the most successful safety campaign. The safety record is 40,000,000 miles without an accident, accumulated by those truck drivers who participated.

What was the magic safety formula followed by the IMTA that enabled it to establish this record? Other associations, and fleets, too, take notice. Here is the formula and there's no magic in it—just a lot of hoosier horse-sense.

to the offices of the association at once.

A fleet record was also maintained. Each enrolled company was required to make a report on its fleet record at the end of each month. This record contained the mileage and accident report of every driver enrolled in the contest.

A driver's mileage record was also kept. The association furnished each driver a form to enable the driver to keep an accurate record by making his mileage entry on this card each day and turning it over to his company at the end of the month for forwarding to the association.

A statement as to the mileage driven by each enrolled driver was particu-



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| Street | | | Total Year Experience Have you passed a Physical the past year? Dative Dative SA Physical | |
| City and State | | | the pass Physical | Examina |
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| Accident Report | "Drive Safely" | HOW AC | CIDENT HAPPENED | |
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Samples shown are of forms used by drivers and fleets entered in the Indiana Motor Traffic Association's safety campaign. These include the monthly fleet report (top left); driver's enrolment blank (top right) the reverse side of which provides for his driving record; driver's mileage record (center right); accident report card (above left) and the reverse side of that card (above right)

larly desirable. The association's feeling was that, while a statement of this sort is not absolutely essential, the information so gathered is very pertinent—and very valuable if correctly reported. It gives some idea of the character of the driver's performance—and that is worthwhile both to him and to the operator as a ready reference record on his work.

Good record statistics was considered excellent publicity. The IMTA made a point of publicizing everything possible. It means a lot more to Mr. John Reader when he sees in his home newspaper a story that drivers with monthly "no-accident" records in the

campaign have in eight months driven safely a distance equivalent to going nearly half way from the earth to the sun. Or that their record represents traveling from the earth to the moon more than 167 times without an accident.

I SHOULD like to venture an opinion as to the most significant part of our campaign. Most significant, as I see it, was this publicity work. Our campaign has been an extraordinary success in

its publicity aspects. Newspaper stories on it have been carried all over the state. One story alone was carried more than 70 times in the state, as shown by that number of clippings actually received. Representatives of the association have addressed luncheon clubs in a considerable number of cities and towns over the state. Dinners and get-together meetings have been held for drivers qualifying for silver buttons, with good publicity in every case.

(TURN TO PAGE 90, PLEASE)

AFTER HOURS

Editorial Comments By George T. Hook, Editor

An Appeal to Ring in the New Year With the Hammer of Reason

ON the threshold of a New Year which, we confidently believe, will distribute tokens of great prosperity among business in general, and in which distribution readers of this publication will share generously, it is appropriate to pause, take an inventory of recent events and do some serious thinking about the future—our business and social future.

It's not our purpose to enter into a political debate. Our concern is not with party politics or political parties; it is with fundamental principles that involve the welfare and happiness of all of us.

Because of the flood of confused thinking, irresponsible utterance and mischievous activity now overwhelming the world, it is not surprising that many a patient and intelligent American citizen is wallowing in a bog of doubt, wondering if those who question the soundness of institutions which have made this country great might perhaps be right.

"ARE these talkers correct," he questions, "when they point abroad at the state of the world and say: 'You see what happened over there? Dictatorships in Spain, Germany, Italy, Russia, China, Greece. They had to come to it because nations, from now on, must be organized like armies, each commanded by a single head. Mankind must be handled in masses. The days of freeand-easy living are gone here as well as elsewhere. We must all come to the same military formation of trade regiments, industrial divisions, economic armies and march—march from the cradle to the grave. For your capitalistic system is dead."

Perplexed, he asks himself: "Is our splendid day of empire-building really over? Is it true that our American System of Enterprise could work only when we had a continent to develop? Must we now settle down to a breadticket existence—a life of standing in line, of hopeless self-denial?"

When this fanatical assurance that capitalism has been slain came from fanatics—the Marxists, Leninites and Hitlerites who thundered that the whole world must be won over to Communism, Fascism or National Socialism—John Q. Citizen didn't let his doubts throw him. He didn't think much of that crew anyway. But, when leaders of his own people began to spout these same doctrines, his doubts about the old order deepened.

"Maybe," he reasoned, "without knowing it we are already in the new order, an order of socialization of everything, principally wealth and property. If that is the case, we may as well turn the direction of American affairs over to those who believe in this socialization—or whatever they call it."

HIS is a dangerous attitude, this spineless readiness to surrender of many of our citizens whenever one of the "look-what-happened-to-Europe" school of thinkers points a conclusive finger across the sea. It must be conquered with reason, some of the reason which regimented Russians, Romans and Rhinelanders failed or had no opportunity to assert. For it is pitifully obvious that European nations surrendered to dictators not because they reasoned that the time had come to organize themselves into regiments to perform all the tasks of life, but because they were in a state of revolution and utterly unable to reason about anything. Reasoning implies the necessity of analyzing the system by which this nation has grown great to see what we can find to warrant our faith in its power to perpetuate itself.

SOME call it the Capitalistic System, but that does not describe it correctly. A more accurate designation is the American System of Enterprise. This, in turn, can be defined briefly in single words: Individualism, Initiative, Industry and Independence.

The discoverers who set out in frail barks for a wilderness of unknown terrors; the men who founded the settlements that grew into the Thirteen States; the brave spirits that prairieschoonered into a wild and woolly West, were individualists of the first order. They were individualists by selective breeding. They had to be or they never would have left their European homes and relative security to face the task of cutting a meager living out of the plains and forests of America. Their spirit was in the 56 men who put their heads into a noose and their names upon the Declaration of Independence; and in the ragged rebels who marched and countermarched in the heat and the snows of seven long years to gain for themselves and hold for us the right to originate and carry on our private business without interference from Governmentany Government, New Deal, Old Deal, Raw Deal, or Square Deal!

SUCH is the ancestry of the American System of Enterprise, which began to taken form immediately after the War for Independence and reached full growth with the coming of steam, a quarter-century later. The steam engine released more pent-up individualism, initiative and industry in all directions than any other physical factor in the development of our system.

It started the inventors on their way to revolutionize completely the manner of living of the nation. These individualists mounted their steam engines on wheels or set them up in boats, thereby inaugurating a new era in transportation. They connected up their engines to the unwieldy flour mills and crude spinning frames of the time, thereby setting in motion the machine with its chain of industries extending back into the depths of the earth.

Nor were the inventors alone in their individualism. The railroaders, ship-masters, city-builders, machine-makers, manufacturers quickly saw the opportunity to adapt the new inventions to enterprises of their own—enterprises on an unprecedented scale and at a cost which called for more money than inventors and promoters could scrape together between them. And here Capi-

[TURN TO PAGE 92, PLEASE]

Keep Costs and Beat the 'Rap'

THE "rap" in this case is the high cost of inefficient operation resulting from failure to keep ample operating cost records. Here's the how and the wherefore of efficient cost accounting. It takes into account all fixed and variable expenses and is easy to keep. Operator Winchester tells the tale that will keep you out of trouble and in the dough.

Ask the average motor vehicle operator if he knows how much it costs him to operate his fleet and the chances are 10 to one that he'll answer affrmatively without the slightest hesitation. But, ask him if he knows how to figure his operating costs accurately and how to use his knowledge of costs to the advantage of his business, and you'll probably not get such a quick answer.

The sad truth of the matter is that few operators pursue the most intelligent course with regard to cost accounting. Many of them employ methods which, if not slipshod, are not thorough and not in keeping with the most advanced accounting procedure. In some cases they do not feel that it is worth the effort, and they belittle the necessity for cost accounting, dismissing it with some such comment as "just a lot of needless bookkeeping."

The contrary is true. Admittedly, it is a lot of bookkeeping; but it is not needless, and it is decidedly valuable. If you don't know how to figure your

costs, how do you know where your business is going? You may be getting a living out of the business if you operate for hire, or, if you operate a fleet for your company you may think your costs are low. But you

will not know definitely and, lacking the various information brought forth by cost accounting, you will not be in a position to institute economies or to take steps that cut down waste and add to the efficiency of your enterprise.

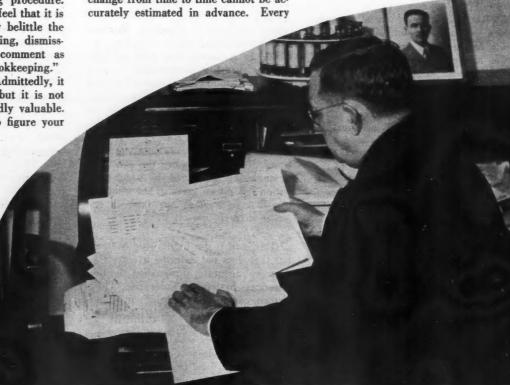
WHAT items go to make up motor vehicle operating costs? That sounds like an easy question to answer. But it isn't. Costs are divided into two classes: fixed costs and variable costs. Those items which remain constant throughout the year are fixed charges which can be anticipated from one year to another. The costs which change from time to time cannot be accurately estimated in advance. Every

operator should figure his costs under these two separate divisions. Under fixed costs he should include (1) depreciation, (2) drivers' wages, (3) helpers' wages, (4) insurance, (5) license, (6) taxes, (7) storage and (8) administrative overhead.

The variable costs should include (1) repairs, (2) tires, (3) gas and oil, (4) miscellaneous.

These cost records should be kept in such a manner that they can be interpreted for a variety of purposes. First, they should be kept by truck.

(TURN TO PAGE 69, PLEASE)



All Operator Winchester may want to know about operating costs are kept on these forms

SELLING, like vamping, requires specific technique. With trucking under regulation, truckers will have to abandon the rough and ready sales approach and put "appeal" into their methods of getting business. This means merchandising personalities and service. An industrial traffic man who has been buying traffic service for years calls on his experience here and tells truckers how to sell it.

Truckers Must Learn to Sell

OW that the interstate operations of motor carriers are under the jurisdiction of the Interstate Commerce Commission the duel between the trucks and the railroads becomes such that the trucking industry must give considerably more thought and care to the methods they employ to obtain business.

Although it is unreasonable to expect that an industry as young as trucking should have the sales technique of a life insurance company, nevertheless there is much room for improvement. Improvement which, incidentally, motor

carriers already are beginning to recognize and adopt. Here is a hard, practical problem with which truck operators must immediately come to grips.

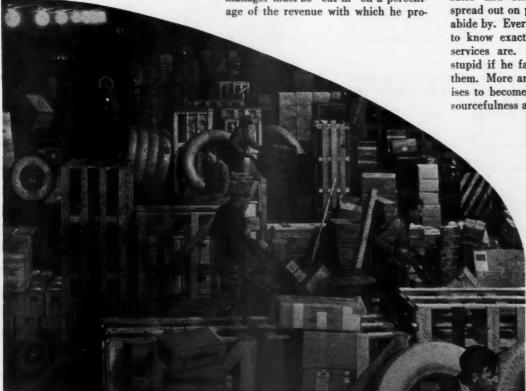
Right at the start let us dismiss two fictions about selling which persist in some minds. The first is the idea that a successful salesman must be dressed like a fashion plate. That sort of thing may be all right for a Fifth Avenue haberdasher or a Park Avenue jeweler. But in ordinary business relations little more than neatness is required. As a matter of fact, exaggerated dress often creates an unsatisfactory impression. The other fiction is that in order to obtain business the shipper's traffic manager must be "cut in" on a percentage of the revenue with which he pro-

vides the motor carrier. Fortunately, the trucking industry has been speedily discarding this vicious habit which has caused far more trouble than it has conferred benefits. Besides, under the Interstate Commerce Commission regulations this practice is forbidden as a form of rebating. Certainly it is not salesmanship.

While in the final analysis I. C. C. regulation should prove distinctly beneficial to motor carriers, the important point to remember at this time is that the new competitive situation between trucks and railroads, and between truck operators themselves, will quicken and become more sharply defined. Now the rates and services of each will be spread out on paper for all to read and abide by. Every competitor will be able to know exactly what your rates and services are. And he will be pretty stupid if he fails to inform himself of them. More and more the battle promises to become one of service, wits, resourcefulness and salesmanship as rates

> become more or less stabilized, if not uniform.

Not so long ago most trucking solicitation was done something like this: The sweet young thing who sat at the desk in the reception room of any (TURN TO PAGE 59)



There's a harvest of freight awaiting the trucker who learns to sell himself and his service



THIS classy looking Dodge is the last word in service trucks. Like a good-looking nurse, it makes the driver of a stalled car, if not the car itself, feel better as soon as it comes in view. It is finished in two colors, with chromium hand rails, and its tapering lines give this truck a sleek appearance.

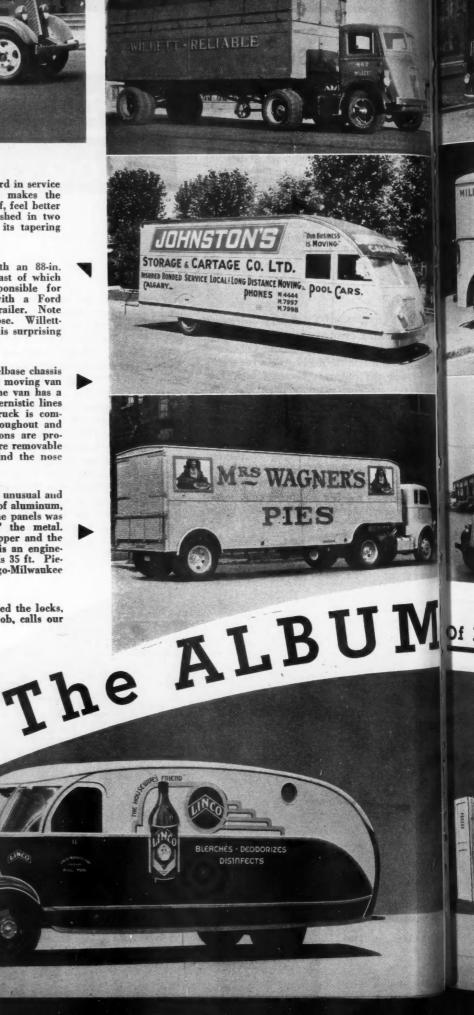
SUPERIOR Roadmaster Model F46 with an 88-in. wheelbase is full of surprises not the least of which is the fact that Grass-Premier is responsible for the cab-over-engine tractor powered with a Ford engine. Fruehauf built the 25-ft. semi-trailer. Note the provisions for ventilation in the nose. Willett-Reliable of Chicago is the operator of this surprising combination.

AN INTERNATIONAL A-5, 210-in. wheelbase chassis is the invisible power under this unusual moving van operated by "Johnston's" of Canada. The van has a capacity of 1100 cu. ft. Built along modernistic lines by Hay & Harding, Ltd., Canada, the truck is completely enclosed, electrically lighted throughout and heavily padded. Sleeping accommodations are provided for the driver and helper. Skirts are removable for changing tires. The engine is behind the nose of the van.

THIS FRUEHAUF semi-trailer is a most unusual and attractive job. The trailer body is made of aluminum, roof and all, and the striking effect of the panels was obtained by hammering or "knurling" the metal. The letters were cast individually in copper and the entire unit was varnished. The tractor is an engineunder-the-seat Autocar. Over-all length is 35 ft. Pie-Bakeries, Inc., uses this job on its Chicago-Milwaukee run.

A. L. HANSEN MFG. CO., which supplied the locks, regulators and other hardware for this job, calls our

attention to the fact that the unusual body was designed and built by General Body Co., Chicago, for Linco Products Co., to be used for broadcasting purposes only. Note the loud speaker opening in the side panel. The rear of the truck has a platform on which a man stands while giving talks and demonstrations. The chassis is a Chevrolet.







Truck Lubrication Specifications

PRACTICALLY all truck manufacturers are represented in the following table which gives to fleet operators, for the first time, truck manufacturers viscosity recommendations for lubricants to be used in engines, transmissions, rear axles, steering gears and universal joints of the 1934 and 1935 and, in some cases, 1936 trucks. The manufacturers' recommendations are given to cover the entire temperature

range, and such changes in viscosities as the manufacturers suggest to compensate for varying climatic conditions are clearly listed.

This information could not have been compiled and published here if it had not been for the splendid cooperation of the truck manufacturers and, in particular, the individuals who disburse engineering information. Appreciation of the generous part these men played

in making possible the publication of these important details is hereby acknowledged.

knowledged.

Commercial Car Journal feels sure that their efforts will be well rewarded. The importance of operating trucks with the recommended lubricants cannot be too highly stressed. The truck manufacturers insist that it is the only way to get satisfactory performance. They have spent a great deal of time

and money in arriving at satisfactory specifications. Lubricant manufacturers have done likewise and in most cases they have worked together or with the full knowledge of one another's prob-

The information contained in this table is the result of their efforts and certainly the wisdom of taking advantage of the expert opinion and research represented is obvious.

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| | Chilton |
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| TRUCK MAKE AND MODEL | | ENGINE | | TRANSN | TRANSMISSION | REAR | REAR AXLE | STEERING GEAR | G GEAR | UNIVERSAL |
|--|--|---|---|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-----------|
| | Visco | Viscosity and Temperature Range | lange | Summer | Winter | Summer | Winter | Summer | Winter | JOINT |
| AUTOCAR—RG,RH,D,DF,DH | 80(S) | 40(W) | | 160 | 110 | 160 | 110 | | | |
| AVAILABLE—W120, W150, W170, W210, W240 (1934-35) W300, W400 (1934-35). | 40 above 32° 60 or 50 above 32° | 30 below 32° 50 or 40 below 32° | | 160 | 110 | 160 | 110 | | | FG160* |
| BROCKWAY—78 (1935). 87, 99X, 96, 116, 125X, 136, 145, 150X4, 150X5, 160X, | LD30 above 32° | HD40 above 32° | 30 below 32° | 160 | 110 | 160 | 110 | 160 | 110 | 160 |
| 165X, 170X, 175X, 180XSBT, 180XSBT Spec., 195X, 220X, 240X, 260X (1934-35). | LD40 above 32° | HD40 or 50 above | 30 below 32° | 160 | 110 | 160 | 110 | 160 | 110 | 160 |
| V1200 (1934-35) | LD40 above 32° | HD50 above 32° | 40 below 32° | 160 | 110 | 160 | 110 | 160 | 110 | 160 |
| CHEVROLET—All Medels (1934-35-36) | 30 above 50° 10W — 10°-45° | 20@30~80° 90% 10W, 10% Kero below 20° | 20W@10°-80° | 160 | 106 | 160 | 40¢ | | | |
| COLEMAN—All Buda Engine Models. All Sterling Engine Models. | LD(8)40 50 | HD(S)50 60 | 20 below 32° 20 below 32° | | | | | | | |
| CORBITTAll Medels (1934-35) | (S)40 | (W)30 | | 110 | 06 | 160 | 110 | 160 | 160 | 160 |
| DIAMOND-T-211, 211A, 220, 226, 227, 242, 243, 262, 311B, 311C, 312, 351B, 351C, 352, 411B, 412B, 511B, 311DR, 351DR, 351DR, 512DR, (1935-35) | 40 above 40° | 30 below 40° 30 below 40° | | 160 | 0.06 | 160 110EP | 90 110EP | 160 160 | 160 160 | 160 |
| DODGE-LC (1935-36). | 30 @ 32°-100° 10W @ 0°15° | 40 above 100° 90% 10W, 10% Kero below | 20W @ 32°-0° | 160 | 06 | 160 | 06 | 160 | 08 | PG |
| LE Series, LF Series, LG Series, LH Series, K60V Series. | 40 @ 32°-100° 10W @ 0°15° | 50 above 100° 90% 10W, 10% Kero below -15° | 20W @ 32°-0° | 160EP | 90EP | 160EP | 90EP | 160 | 06 | FG |
| DUPLEX-S, SAC, K (1934-35) | 20 below 5° | 30 @ 5°-50° | 40 above 50° | | | | | | | |
| ESCO—135 (1934-35). 235, 235H, 335 (1934-35). 2350, 3350 (1934-35). | 40 above 90° 40 above 90° 50 above 90° | 30 @ 32°-90° 40 @ 32°-90° 50 @ 32°-90° | 20 @ 32°-0° 30 @ 32°-0° 40 @ 32°-0° | 200EP 200EP 200EP | 110EP 110EP 110EP | 200EP 200EP 200EP | 110EP 110EP 110EP | 110EP 110EP 110EP | 110EP 110EP 110EP | FG |
| FEDERAL—15, 18, 29, 25, T10B, T10W (1935). 28, 29, 30, 40, 40DR, 50, C7, C8, X8, X8R (1935). | 30 @ (S&W) 30 @ (S&W) | | | 160 | 160 | 160 | 160 | | | 160 |

| TRUCK MAKE AND MODEL | | ENGINE | | TRANS | TRANSMISSION | REAR | REAR AXLE | STEERI | STEERING GEAR | UNIVERSAL |
|--|--|---|--|--|----------------------------|---|---|--|--|---------------------------------|
| | Visc | Viscosity and Temperature | re Range | Summer | Winter | Summer | Winter | Summer | Winter | TNIOL |
| FORD—All (1932-35) | | 20 above 90° 40 @ 30°-110° 20W @ 0°-50° 10 or10W @—15°-30° | 30 @ 20°-65° 90% 10W, 10% Kero below—10° | 160 | 90 or 110 | 160EP | 90EP or 110EP | 160 | 90 or 110 | |
| FWD—HS, T26 (1934-35) HG, HHG, CUGA, SSU, SSUA, MS, MFG, LBU, MS, GOT, ZT (1934-35) M7 (1934-35) | (8)50 | (W)30 (W)40 (W)50 | | 160EP 160EP 160EP | 90EP 90EP | 160EP 160EP | 90EP 90EP | | | |
| GENERAL MOTORS—T16, T18, T33, T33L. T45, T23, 1 T46, T781, T78H, T75, T75T, T73, T73H. | 30 @ 32°-90° 40 @ 32°-90° 30 @ 30°-35° | 40 above 90° 50 above 90° 40 above 35° | 10W below 0° 20W @ 32°-0° 20W @ 32°-0° 10W below 0° 20W @ 30°-0° 10W below 0° | 160 | 90 below 15°-110 @ 15°-35° | 160 above 35° 160 above 35° | 90° below 15° 110° @ 15°-36° 90 below 15° 110 @ 15°-35° 90 below 15° 110 @ 15°-35° | 160 160 160 | 160 160 | 110 |
| HAHN—440 (1934-35) All Others (1934-35) | 60 (S) 50(S) | 50(W) 40(W) | | 160 | 88 | 110 | 86 | 110 | 06 | |
| HUG. | (S)LD40 (W)HD40 | (S)HD50 20W below 32° | (W)LD30 | LD160 HD250 | LD110 HD160 | LD160 HD260 | LD110 HD160 | | | FG160* |
| INDIANA—AII (1934-35-36). | (W)30 | (S)40 | | 0160 N110 | 06 | 0160 N110 | 06 | | | 160 |
| INTERNATIONAL HARVESTER—CI, CIO, CIS, C20, C30, C35, C35, C36, A7, A8, M2, C35T, C35T, C46T, C46T, C56T, C35F, C46T (1934-35) | (S)LD 30 or 40 | (S)HD 40 or 50 | 20 or 30 above 20°111 | | | | | | | |
| KENWORTH—All. | | | | | | | | | | |
| LA FRANCE REPUBLIC—C3, D4, E4 (1934-35). F4, H6, K1, M4, MT4 (1934-35). | 40 @ 32°-90° 50 @ 32°-90° | 30 @ 0°-32° 30 @ 0°-32° | 20W @ 15°-0° 20W @ 15°-0° | 160 | 06 | 160 | 06 | 160 | 160 | 160 |
| MACK—All. | (S)40 | (W)-HD-40 | W-LD-30 | 160 | 06 | 160 | 06 | | | 160 |
| MENOMINEE—A15 (1934-35) DX6, DN6, N6, A30, JX6, 8W6 (1934-35) | (8)40 (S)50 | (W)30 or 20 (W)40 or 30 | | 160EP 160EP | 90EP 90EP | 160EP 160EP | 90EP 90EP | 160EP 160EP | 90EP 90EP | |
| MORELAND. | | | | - | | | | | | |
| REO-Ali (1934-35) | 30(S) | 20W(W) | | 160 | 06 | 160 | 06 | | | 160 |
| STERLING—FBS0 De Lare, FB60 De Lare, FB70 De Lare, (1984-85). FB60, FC196-85). FB71, FC106, FC135, HC140, HC170 (1934-85). FB1130 (1934-85). FB1130 (1934-85). FB1130 (1934-85). | 40 @ 32°-90° 50 @ 32°-90° 40 @ 32°-90° 60 @ 32°-90° | 30 @ 032° 30 @ 032° 30 @ 032° 30 @ 032° 30 @ 032° | 20W @ 15°-0° 20W @ 0°-15° 20W @ 0°-15° 20W @ 0°-16° | 160 160 160 160 | 3888 8 | 160 160 160 160 | 8888 8 | 160 160 90 90 160 | 160 160 90 160 | 160 160 160 160 160 |
| STEWART—40H, 41H, 46H, 47H, 50H, 45H, 49H, 32X, (1934-35) 88X, 48-8, 18XS, 38-8, 38-6, 31X, 27XS (1934-35) | 40(S) 40(S) | 30(W) 30(W) | | 160 | 90 | 160 | 90 | | | |
| STUDEBAKER—T2, T4, T6, T8 (1934). W8 (1934). IT200, IT600 (1935). IW700, IW800 (1935). | 10 below 10° 30 below 0° 10 below 10° 30 below 0° | 20 © 10°45° 20 © 10°45° 40 © 0°32° 40 © 0°32° | 30 above ††45° 50 above 32° 30 above ††45° 50 above 32° | 8888 | 2222 | 00000 | 0000 | | | |
| WALTER—FND, FMD, FQS, FJS, FKMD, FJMT, FCKD, FCS, FBS, FBRS (1934-35) | 50 @ 20°-100° | 40 below 20° | | 160 | 110 | 160 | 110 | 9123 | | |
| WHITE—703, 704, 704K, 709, 712, 718, 730, 731, 7317 (1934-35-36) | 30 (S & W) | | | 0160 N110 | 06 | 0160 N110 | 06 | | | 160 |
| 640, 641, 642, 643, 643SW, 420, 691 (1934-35-36) | 40(W) | 50(8) | | 80999 8190 8190 8190 8190 8190 8190 8190 | 06 | 8989 8989 | 06 06 | * | | 160 |
| WILLYS-77 (1933-34-35-36) | 10 @ 15°15° | 20 @ 15°-40° | 30 @ 40°-80° | 190-210 | 150-170 | 190-210 | 150-170 | 190-210 | 150-170 | FG |
| ABBREVIATIONS: *—Fibre Greese for pin and bushing type. 160 for needle bearing type. | 1—10% kerosene in extremely low temi tures. 5—Use 80 in extremely bot weather. 17—Use 40 for high speed above 90° | extremely low tempera- ely hot weather. speed above 60° | | †††—Use winter oils if desirable for specific conditions. N—New Trucks. O—Old Trucks. | lesirable for specific | Kere—Kerosene. FG—Fibre Grease. (S)—Summer. | ne. rease. | ME GENERAL STATE OF THE STATE O | (W)—Winter. HD—Beavy Duty. LD—Light Duty. EP—Estrone Pres gre | |

Eyeing the Big Service

Shop Equipment, Parts and Accessories Makers Uncover New Developments for Fleet Market

HE Municipal Auditorium at Atlantic City was simply crammed with new automotive developments when all of the exhibitors at the joint Automotive Service Industries show arrived with the products that their engineering and research departments have been laboring over for the last year. And when you cram the Municipal Auditorium, you have crammed one of the largest buildings in the country, which gives the fleet operator a rough idea of the number of new tools, equipment and parts which he must scrutinize carefully if he does not want to pass up any bets.

Since most fleet operators did not have an opportunity to see the exhibits under one roof, COMMERCIAL CAR JOURNAL, being faithful to its craft, gives them here a word picture of the new developments of

the industry.

One of the most startling developments is the expander piston ring by Perfect Circle. The expander is unlike any that have appeared so far. It will be used behind a ring of the same general type as the Perfect Circle "85" and also with a ring similar to the "70."

Another outstanding development is the American Hammered Koetherizing process. An aluminum piston is "miked" and the collapse calculated. Then when the amount of desirable expansion is known the machine air pressure is set accordingly and the operator gages his time. The piston is put in the machine where the inside of the piston is peened on the thrust sides with shot and the piston comes out. Your mikes will show you that it has been expanded to the desired size. The machine is not for sale. It is provided as a jobber service.

The Mechanics Machine Co., division of Borg-Warner, has a roller bearing universal joint for replacement on Ford and Chevrolet trucks. Asbestos Manufacturing Co. is working on a new idea of attaching brake lining to the shoes but, like all items mentioned so far, complete details are lacking and a more complete description will follow in later issues of Commercial Car Journal. Bendix has a new



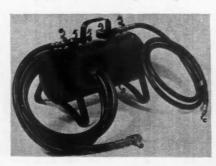
dynamic wheel balancer that turns wheels up to driving speeds, and also a 200-ton frame and axle press. Burgess-Norton was demonstrating a metal spray device that will spray any kind of metal that can be bought in wire form.

Here, briefly, are many of the new items exhibited which fleet operators will want to know about:

Checking Bearing Fit

THE Federal Mogul Corp. of Detroit has conducted some interesting experiments showing the relation between bearing fits and oil leakage from the main and connecting rod bearings. The equipment used is illustrated. The capacity of tank A is 5 qts., and S.A.E. No. 30 oil is used for making the tests. Line C is connected

Equipment for checking bearing fit

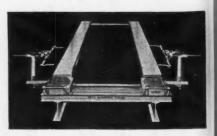


to the engine lubricating system, the oil pan being removed, and line B is connected to the shop air line, a reducing valve E being provided to secure a tank pressure of 25 lbs. A check on the bearing condition is obtained by noting the drippage or leakage from each bearing after the air pressure is turned on, care being used to insure that the oilway through the crankshaft does not open into a connecting rod squirt hole. Tests may be made while cranking the engine slowly by hand, or if it is equipped with main bearings having annular oil grooves, the shaft can remain stationary.

Alignment Tester

BEAR'S wheel alignment tester makes it possible to check caster, camber, king-pin inclination, toe-in, etc. It is comprised of two testing units upon which the front

Bear wheel alignment tester



COMMERCIAL CAR JOURNAL

Show for Fleet Ideas



Additional New Products Being Offered to Fleets Are Described Briefly on Pages 32, 40 and 42

wheels of a truck are driven for checking the relation of its wheel angles and steering geometry. Free floating and rotating turning gages measure the angle of left and right turns. A combination of auxiliary automatic gaging instruments with visual indicator dials are employed for checking the caster, camber, etc. Bear Manufacturing Co., Rock Island, Ill.

Nukraft Upholstery

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A NEW upholstery material, involving the use of Latex and a unique method of fabrication, has been announced by The B. F. Goodrich Co., Akron, Ohio. Known as Nukraft, this upholstery consists of haircloth, insulated with Latex, which has been fabricated into loops forming a structure of figure eight springs. Nukraft locks the cotton in place.

Goodrich Nukraft upholstery



JANUARY, 1936

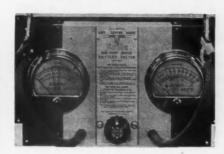
Exide Tester

USE of the Exide sure-start tester will give warning of possible battery failure. This instrument not only detects separator failure, but shows plate wear, and indicates the condition of each cell separately. Different settings are provided depending on the number of plates, and the mechanic can tell at a glance whether the battery should be replaced by the reading obtained under heavy discharge. It is manufactured by The Electric Storage Battery Co., Philadelphia.

Valve Stem Packing

WILCO valve stem packing is designed to prevent air or oil from leaking through worn intake valve guides. This latest

Exide sure-start tester

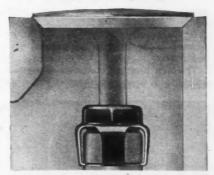


product of The Wilkening Manufacturing Co., Philadelphia, is said to be made of a special material unaffected by oil or gasoline, even at high temperatures. Wilco packings are installed on intake valves only, and are placed on the combustion ends of the guides, so that they do not interfere with the normal lubrication of the valve stems. A full range of sizes takes care of all passenger car and truck engines.

Piston Expander

SEALED POWER piston skirt expander, recently announced by Sealed Power Corp., Muskegon, Mich., is designed so that outward tension is exerted at right angles to the wrist-pin and entirely across

Wilco valve stem packing



Sealed Power piston skirt expander



EYEING THE BIG SERVICE SHOW FOR FLEET IDEAS

the slotted side of the skirt. This expander, it is claimed, does not merely open the slot but restores part of the original shape and circularity of the entire piston skirt, permitting the piston to be fitted with the standard factory clearance. Five sizes are furnished to cover all popular sizes of pistons.

"X" Radiator Flush

THE "X" Radiator Flush gives adequate cleaning of the cooling system, and will not attack aluminum cylinder heads, rubber hose or radiator cores, according to the "X" Laboratories, Inc., New York City.

Sioux Gun

THE Sioux solder spray gun makes it possible to fill up dents in bodies and fenders without heating the metal. The gun is connected to the shop air line and to a standard electric-light socket, and melts the solder and delivers it in the form of a spray much like a paint gun. A complete outfit sells for \$42.50. It is a product of Albertson & Co., Inc., Sioux City, Iowa.

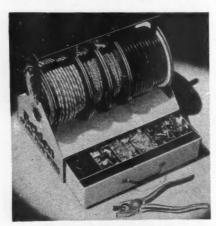
Light Truck Batteries

THREE new storage batteries for replacement in light trucks have been added to the battery line of the B. F. Goodrich Co. Positive plates are twice as thick as those in the best passenger car type, while negative plates are similar to those in passenger car batteries. Combinations of thicker positive plates and the heavy duty separator construction and extra acid space improve the electrical capacity and assure reserve power for hard service.

Portable Wire Dept.

A NEW idea for simplifying the installation of automotive wire has been brought out by the Belden Mfg. Co., 4689 West Van Buren Street, Chicago, in the forming of the Belden 7666 portable wire department.

This new assortment consists of a metal cabinet with drawer and support for spools



of wire. It is furnished completely stocked with essential terminals, distributor clips, bakelite nipples, and a Belden 7798 crimper and cable stripper.



Condenser Tester

ALL types of coils and condensers can be tested on the model T-300 Niehoff tester, product of C. E. Niehoff & Co., 230 West Superior St., Chicago. If desired the coils can be preheated, and the Geissler glow tube is said to readily detect any "miss" even at high speeds. An ammeter of the moving coil type indicates the dead short draw and the operating current required by the primary winding at different speeds. The breaker points, which are operated by a variable speed motor, are readily visible through a glass enclosure.

Electric Heat Gun

ALBERTSON & CO., Sioux City, Iowa, has put on the market the Sioux electric heat gun, which is a heat-blowing unit designed for thawing out frozen radiators, water pumps, hose connections, etc. It is also an aid in greasing the transmission and differential in winter as it can be used for thawing out the frozen grease. Wet



spark plugs, distributors and ignition wires can be quickly dried with this heat gun, which produces a temperature of 450 deg. F. Features include a Universal motor which operates on a. c. or d. c. current, a 3-stage centrifugal fan with a capacity of 8½ cu. ft. per minute and a nichrome heating element.

Tasco Cut-Out

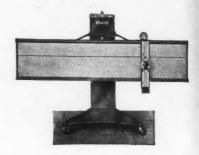
THE Tasco super "Custom-Bilt" generator cut-out employs a horseshoe or U-type magnet, and because of the close magnetic paths, a strong pull is obtained. The voltage coil is of the layer-wound type which is said to afford protection against short-circuiting. A double primary winding having sufficient carrying capacity for the higher charging rates is employed. Large-size con-

[Other Items Page 40]

tacts of special silver alloy having a low resistance are used to provide a free passage of current. The Tasco cut-out, which is made by The Automotive Specialty Corp., 382 Jefferson St., Brooklyn, N. Y., is furnished for either 6 or 12 volts.

Headlight Tester

WEAVER MFG. CO., Springfield, Ill., announces a new headlight tester which measures the intensity of the headlamp beam as well as the aim and focus. The tester consists of a portable screen. In front of the screen is an Optoscope, consisting of a photo-electric cell, gauge and an internal ground glass screen on which two images of the headlight are projected. By means of these images the screen can be



set at exactly 10 ft, from the lights, and the gauge on the face of the Optoscope will show the number of inches drop of the beam in 25 ft.

Bar Filament Bulb

GENERAL Electric Co., Cleveland, Ohio, has introduced a new headlight bulb Mazda No. 2331 in which the filaments are in bar form instead of the conventional V-shape. In switching from the driving to the passing beam, both headlights are directed more to the right and somewhat lower, providing increased illumination



along the edge of the road. It has a prefocussed base, but will only line up in headlamps that have been specially designed for its use.

COMMERCIAL CAR JOURNAL



The clever use of color and lettering revived the appearance of trucks in CCA's fleet and put them back in style

How can old equipment be made to conform to modern ideas of design? Art Director Jacobson answers this problem by describing in detail what was done to rejuvenate the fleet of the Container Corp. of America. If it is claimed that his was the work of a professional designer, operators are advised that paint and decal transfer manufacturers maintain staffs to devise and advise on lettering and color schemes for trucks. This service is yours for the asking.

PPEARANCE has come to play a more and more important part in the operation of motor trucks. Operators conscious of the value of a truck as an advertising medium are making every possible effort to make their trucks conform to modern ideas of design. Many operators, however, are faced with the cold fact that most of their trucks were purchased before the advent of streamlining, the extensive use of chromium or the tendency of styling truck front-ends to gain some of the attractiveness of modern passenger cars. There is also the fact that these less attractive trucks are still good for a number of years of service, and so, will not be replaced immediately for trucks of more attractive design. The problem, then, is what to do with these trucks to make them conform with modern ideas of design, without benefit of streamlining.

The truck may be considered in two aspects. It is, of course, an object

Trucks Can Be Modernized

WITHOUT BENEFIT OF STREAMLINING



Invention of Color Schemes and Lettering Appropriate to the Business is the Happy Hypodermic for any Fleet's Run-Down Looks

By EGBERT G. JACOBSON, Art Director, Container Corp. of America

that has height, length, and breadth; next, each side offers a large area suitable for two-dimensional design. It is with this area that we are first concerned. The word "design" here includes only the lettering and the general color scheme; the fascinating possibilities of illustrative material such as still-life and animal and human figures treated as posters on automotive equipment is well worth separate consideration.

Developing a lettering and a color scheme for a fleet of 50 spanking new and identical trucks, just off the production line, is a matter of a few hours' headache and 50 decalcomanias. But most fleets have not been acquired at once; they have been built up slowly. Lettering and layout that were thought very modern 20 years ago have been repeated year after year without adaptation to suit new sizes and new (TURN TO PACE 88, PLEASE)

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car. This double drop frame is deeper in side rail cross section and has five truck-type cross members including the rear engine support. The commercial sedan is an exception in that the passenger car chassis is used to give passenger car riding comfort for the commercial traveler and whose personal transportation needs also call for load capacity for the carrying of mer-

the 1936 line

Outstanding fuel and oil economy have been developed through six major mechanical features and advantages. They are: Aluminum alloy pistons, four piston rings, full length water jackets, valve seat inserts, spray cooled exhaust valve seats and special oil cooling.

chandise.

frame on the one-half ton commercial

Amola steel, a recent metallurgical development of the Chrysler Corp., is used in the springs of the entire 1936 line of trucks and furnishes an additional factor of safety.

The ½-ton commercial car series has a 116-in. wheelbase which replaces the 111 and 119-in. wheelbases of the 1935 series. By shifting the engine and cab

forward, the cab to rear axle dimension of 37 11/16 in. permits the use of a 72-in. body with excellent load distribution. This model is powered by a 3½ x 4½ bore and stroke 201-cu.-in. engine which develops 70 hp. This engine has a three point suspension mounting that is cushioned with rubber at the front end. It also has a four-bearing crankshaft and is equipped with exhaust valve seat inserts, long water jackets, by-pass thermostat and a water distributor tube.

A truck-type channel section, frame

six in. deep, with box cross section members adds to the strength. The clutch and brake pedal mechanism follows the 1½-ton design. The hydraulic brakes are 10 in. in diameter by 2 in. wide with stepped bore wheel cylinders.

1936 Mechanical Improvements Include Fore-point Load

Three speed synchro-silent transmission and axle ratios of 3.7 to 1 and 4.1 to 1, coupled with the 70 hp. engine, give excellent performance. Standard tire size is 6.00 x 16.

Models offered in this series are: Flat faced cowl, cowl with windshield, cab, panel, screen, canopy and express

COMMERCIAL CAR JOURNAL



Top - Dodge 136-in. wheelbase. Center — The commercial panel job is a smartly designed deliv-ery car. Left—The 2-ton chassis with tank body has bearings. The brake support and spring seat is electrically welded to the onepiece housing, after which the entire housing assembly is heat treated. Fullfloating construction is used.

The standard rear axle ratio is 5.42 to 1, with 5.8 to 1 and 4.87 to 1 offered as optional equipment. A frame 7 in. deep with improved cross members and better balanced load distribution provides unusual stability and adds strength. Hydraulic brakes are of 141/8 in. diameter, 13/4 in. wide, with large size stepped bore wheel cylinders.

The 11,500 lb. gross 1½ ton models have an engine of 31/4 in. x 43/8 in. bore and stroke with 217.7 cu. in. displacement, 150 lb. ft. of torque, and 70 hp. Axle ratios available are 5.12 to 1, 5.66 to 1 and 6.33 to 1. Front brakes are 141/8 in. in diameter and 13/4 in. wide, and rear brakes are 16 in. in diameter and 21/2 in. wide. The frame, side rails and cross members have been increased in strength.

THE 2-ton models have a gross weight rating of 13,500 lb. They are available in 136, 151, 162 and 180-in. wheelbase lengths. This truck is powered by a 31/8 x 41/2 in. bore and stroke 241.5-cu. in. displacement engine that develops 170 lb. ft. torque and which has 85 hp. A heavy duty 11-in. clutch with torsional spring dampener, ball bearing clutch release, with provision for lubricating is fitted. The five-speed transmission with a silent fourth speed gives increased flexibility.

A full floating rear axle is offered in ratios of 5.12 to 1, 5.66 to 1 and 6.33 to 1, also a double reduction axle with a ratio of 7.35 to 1, available as extra equipment. Hydraulic brakes, booster operated, 16 in. in diameter by 21/2 in. wide are featured on this model. The frame has been increased in strength through the addition of new cross members. Standard types offered for this chassis are: Flat faced cowl with windshield, cab, platform and

Smarter Styling

Distribution in All Models and Truck-type Frame on 1/2-Ton

and station wagon. The commercial sedan, utilizes the Dodge passenger car chassis. The express box of all steel construction is 72 in. long, 471/2 in. wide and 17 in. high. Particular attention has been given to smoothness of lines and beauty of appearance, the panel model being outstanding in these respects.

THE 11/2-ton models are furnished in 129, 136 and 162-in. wheelbase lengths and in two series of 9500 and 11,500 lb. gross rating capacities. In the 9500 lb. gross 11/2-ton chassis the engine size is 31/8 in. x 43/8 in. bore and stroke, with 201.3 cu. in. piston displacement, 138 lb. ft. torque and 70 hp. The 10in. clutch, with ball bearing clutch release and provisions for easy lubrication, is mounted to a perfectly balanced fly-wheel. A four-speed transmission is used.

The rear axle housings are made of one piece of seamless steel expanded at the center for mounting the differential carrier assembly, and contracted at the outer ends to accept the large wheel

JANUARY, 1936

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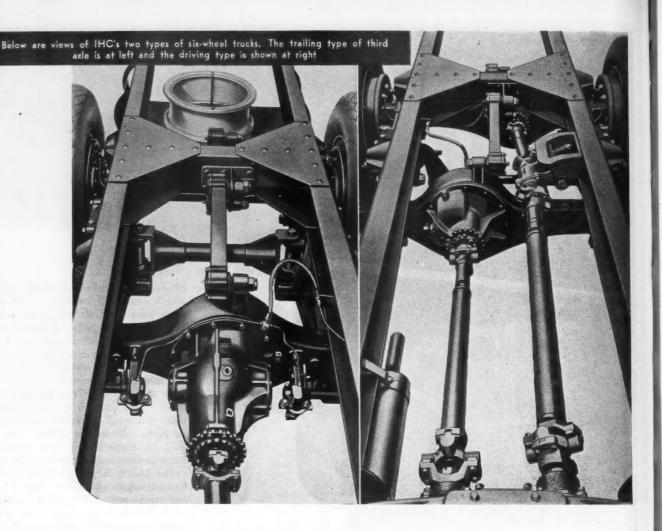
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IHC Adds 6-Wheel and 2-

EIGHT new six-wheel models are announced by the International Harvester Co., Chicago, as part of its standard production. In addition there are three new models which have two-speed axles. Six of the eight new six-wheelers have trailing third axles and two of them have driving third axles. One of the new models combines the trailing third axle with the two-speed driving axle to provide a six-wheel truck with eight forward speeds and two reverse speeds. This model is referred to as CS-35-T.

The six-wheel trucks which are powered with standard International engines are provided with a scientifically designed mounting for the four rear wheels, the fundamental principle of which is retention of the true parallelogram form and under all operating conditions; thus keeping the axles parallel to each other with fixed centers

Six Models Have Trailing Third, Two Have Driving Third and Three Have 2-Speed Axles; One Combines Trailing Third and 2-Speed Axle

between them and the wheels parallel with the frame.

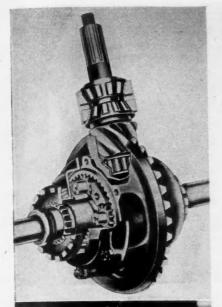
This mounting is designed to permit maximum flexibility without distortion, making possible free up-and-down independent movement of all four rear wheels so as to compensate for road irregularities without disturbing the distribution of weight equally between them or without interfering with equal traction between them in the case of the four-wheel drive type. To accomplish this, equalizing beams pivoted with ball and socket joints through the ends of the housings of the two rear axles below the axle centers are used.

This feature permits the absorption of a large proportion of the starting, driving, and brake torque by the vehicle and its load as well as the reduction of friction to a minimum and the practical elimination of all torsional stress.

THE frame of the vehicle is supported on semi-elliptic springs carried on saddles which are in turn pivoted to the equalizing beams. The truck frame is supported at two points on each side. Pivoting of the saddles to the equalizing beams below the line of axle centers further aids in the absorption of torsional stresses in the

COMMERCIAL CAR JOURNAL

On the left is shown the two-speed differential with gears in low-speed position and below is the lever for changing from low to high speed



vehicle and load. The inverted "U" shape of the spring saddles provides a form of connection to the walking beams of maximum strength in resisting the twisting stresses created by the turning of the vehicle. This assembly relieves the springs of the function of compensating for road irregularities, making it possible to use springs adequate to carry maximum loads without introducing stiffness into the operation of the unit.

SOUTH CHICAGO COAL&DOCK

The axle housings are prevented from tilting forward or backward by radius and torque arms pivoted with ball-and-socket joints at their forward and rearward ends respectively to a substantial frame cross member and axle housings. The design of these radius and torque rod connections is such as to form and maintain, regardless of the position of the wheels, what is in effect a parallelogram of the frame of the vehicle without in any way interfering with the freedom of their upward and downward movement.

In the dual-drive rear end, the problem of compensating for differences in the tire size (due to different makes, various air pressures and wear) is solved by the use of a third or auxiliary differential. In the four-wheel drive, six-wheel trucks, the power is divided ahead of the driving axles by the use of a power divider which contains the third differential. A feature of this power divider is that it includes an auxiliary over and underdrive unit, all the gears of which are of the helical, constant-mesh type, lapped in for quiet operation.

THE dual-performance axle consists of a straddle-mounted spiral-bevel drive pinion, a differential carrier assembly mounted on roller bearings, full-floating axle drive shafts, and the shifting mechanism, full enclosed in a rigid one-piece cast banjo-type housing. The differential carrier assembly incorporates a spiral-bevel ring gear, a simple supplementary planetary reduction gear set (the low-speed feature), and the usual four-pinion differential unit.

The planetary set introduces a slow-moving reduction between the large bevel gear and the differential unit. The planetary set is locked and does not function in any way when the truck is operating in its high-speed range, the unit simply revolving with the differential ring gear, with the engine drive directly through the drive shaft pinion and the ring gear to the axle shafts.

When the planetary set is free to revolve, it entails but four additional moving parts; namely, four small spur pinion gears. These four spur gears are in constant mesh with an internal gear forged integrally with the ring gear. They are also in constant mesh with a centrally positioned spur gear integral with the shifting sleeve which surrounds the left axle shaft.

Speed Axle Jobs

Top right—Model C-55-T six-wheel chassis with trailing third axle and 16½-cu. ft. aluminum body

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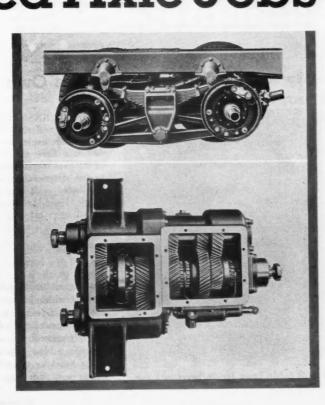
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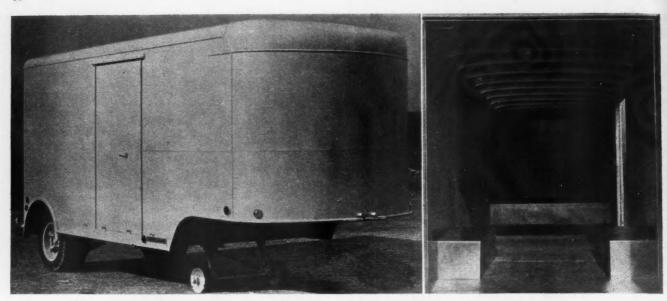
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Center right—The frame of the six-wheel chassis is supported on semi-elliptic springs

Right—The powerfrom the transmission is equally divided and delivered by propeller shafts to both rear axles by this power divider



JANUARY, 1936



Showing exterior and interior design of Fruehauf's new integral body and frame semi-trailer

New Van Trailer Saves on Weight

EW type trailers for warehousemen just announced by the Fruehauf Trailer Co. show a saving in dead weight of from 1400 to 1700 lb. on the various size models without a sacrifice in strength.

The new model is built on the principle that chassis and body, instead of being two separate units which join together, are really one unit. By building them as such, it is possible to the strength.

A further saving in weight was ef-

fected by using 5/7-in. Phemaloid flooring instead of 13/8-in. yellow pine, which has been standard heretofore. Side panels are of lightweight 24 gauge sheet steel. Roof is metal pullman

De luxe appearance is maintained through the use of an oval front and rounded rear corners. A side door, which provides access to the front part of the load is standard equipment.

An interesting table comparing weights of the old and new type warehouseman's van is presented here.

| Capacity | Saving in Weight |
|--------------|------------------|
| 1000 cu. ft. | 1725 lb. |
| 1200 cu. ft. | 1375 lb. |
| 1400 cu. ft. | 1425 lb. |

Lincoln Lubmobile

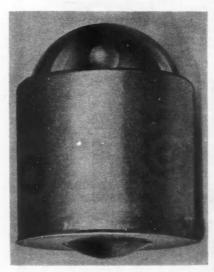
THE Lincoln Lubmobile, product of the Lincoln Engineering Co., 5701 Natural Bridge Ave., St. Louis, Mo., is a portable dispenser that will handle chassis, fluid or fibrous lubricants. It operates on the twostage principle, with a primer pump to lift the lubricant from the original container to the chamber of the high pressure pump which delivers it under high pressure to the control valve.

Exide Battery

EXIDE HYCAP battery, a product of The Electric Storage Battery Co., Philadelphia, is available with either wood or Mipor separators, the latter being an Exide product which is said to combine the characteristics of both rubber and wood. It is practically indestructible, and its high conductivity which permits the battery to respond instantly, is claimed to be a great aid to cold weather starting.

lighten the chassis frame and to allow the body frame to take more of the strain. Engineering special construction for this one job means that this change can be made without lessening

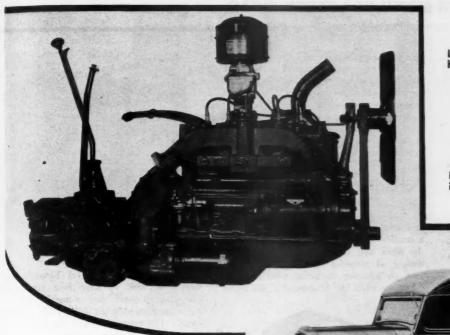
New Flare Develops Own Electricity



It flares for 36 hours

THE TURNSIGNAL CORP., Philadelphia, is offering a flare made under Winckler exclusive license. This is an electric flare which has full strength at all times regardless of its age as there is no deterioration through non-use. It is a sealed unit approximately 4 in, high and 31/2 in. in diameter. It does not depend upon external materials such as batteries, and is unaffected by heat, cold or moisture.

The flare consists of a lamp circuit connected to a battery or cells of the "reserve" type, which is an inactive form of cell having no electrolyte. The electrolyte is stored within the unit in a vitreous container which has a slight protrusion at the bottom of the unit. To get light, it is merely necessary to strike this convex protrusion a blow sufficiently hard to dent it, thus breaking the vitreous container. The light will then burn 36 hours.



Left—Federal's small four-cylinder engine has 3¾-in. bore, 4½-in. stroke and is rated at 50 hp. Transmission has four speeds

Below—The Model 10 panel job is furnished in 7, 8½ and 10-ft. lengths. Five standard body styles are available

NEW 3/4-1 ton truck with fourcylinder engine is now in production by the Federal Motor Truck Co., Detroit. This new Model 10 truck was created specifically to care for the needs of such concerns as bakers, dry cleaners, laundrymen, butter and egg dealers, and others with light, bulky loads.

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In addition to low maintenance, economical operation is assured by the four-cylinder engine which is said to give approximately 50 per cent greater gasoline economy than that obtained with most engines now used in 1½-ton trucks.

The price of this new truck is \$545 for the standard 128-in. wheelbase chassis. Two other wheelbase lengths, 143-in. and 152-in., are available at slightly higher prices. The gross capacity of the truck is 7500 lbs. The chassis weight of the 128-in, wheelbase model is 2950 lb.

Characteristic styling has been carried out in this new model. The inclined radiator has well rounded edges, and is fitted with an attractive grill. De luxe equipment includes skirted front fenders, rubber step plates and chrome-plated radiator, also chrome-plated bumper, hub caps, hood hinge and headlights.

THE four-cylinder Hercules Model 00B engine is mounted in rubber at three points. The engine has a 3 \(^4\)-in. bore, 4\(^4\)-in. stroke, 198.8-cu. in. piston displacement and is rated at 50 hp. It has a three-bearing crankshaft, shaft-driven water pump, force-feed lubrication, valve seat inserts, down-

Federal's Small '4' Stresses Economy

\$545 is Price of Standard 128-in. ¾-1-Ton Model With Gross Weight of 7500 lb. Aimed to Fit the Special Needs of Many Vocations

draft carburetor, air cleaner and fuel

The frame is of the pressed steel, fish-belly type with a maximum depth of 7 in. The flanges measure 2% in. and the stock on the 128-in. wheelbase length is 3/16 in. thick. For extra strength the frame stock on the 143-in. and 152-in wheelbase lengths is 7/32 in. thick.

The front springs are 38 in. by 2½ in. and the rear springs are 50 in. by 2½ in. Front springs are fore-shackled. Rear springs are fixed at the front end and rear ends float on

frame brackets eliminating pins and shackles. All spring eyes and shackles are rubber-hushed.

Front and rear axles are Timken. The rear axle is full-floating, beveldrive type.

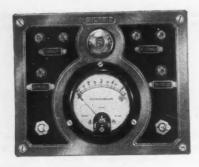
The new Model 10 is equipped with four-wheel hydraulic brakes and cast brake drums. The front brakes are 14 in. in diameter by 1¾ in. wide, and the rear brakes are 15 in. in diameter by 2¼ in. wide.

Other chassis specifications include a 10-in. truck-type, single-plate clutch, (TURN TO PAGE 83, PLEASE)

JANUARY, 1936

EYEING THE BIG SERVICE SHOW FOR FLEET IDEAS

(Continued from Page 32).



Condenser Tester

SHURHIT PRODUCTS, INC., Waukegan, Ill., announces a new condenser tester which tests for capacity as well as resistance. It will operate on 110-volt a. c. current and produces in excess of 500-volts d. c. for breakdown test.

Wiper Blade

REX-HIDE windshield wiper blade consists of a hollow, perforated tube of soft, carbon base rubber, set in a shaft of stainless steel. As the blade sweeps across the glass, alternate areas of pressure and vacuum are created, forcing water through the holes and constantly cleaning the wip-



ing ribs. The constant flexing of the rubber is said to prevent ice and snow accumulations, except under the most severe conditions. It is a product of Rex-Hide Inc., East Brady, Pa.

Arrow Signals

ARROW SAFETY DEVICES CO., Inc., Medford, N. J., is manufacturing a com-



plete line of safety signals for truck use. Various combinations are available including fender lamps, swivel lamps, and a combination rear unit containing a tail light, stop light, and two directional signal lights. Arrow signal lights are all controlled by a semi-automatic switch mounted on the steering column, in such a way that after a turn has been completed, bringing the steering wheel back to the normal position automatically turns off the lights.

Purolator Vise

THE new Purolator vise, designed to fit all makes of oil filters, is made of steel and has jaws so placed that they form a cradle. A metal clamping band fits over the filter and holds it in place without danger of pressing out of round. This vise, in addition to being used to hold oil filters while the fittings, etc., are being



removed, can also be used to hold pistons while the ring grooves are being cleaned. Motor Improvements, Inc., Newark, N. J.

Hydraulic Jacks

"WINGS" is the name of the new streamlined hydraulic jack manufactured by the Blackhawk Mfg. Co., Milwaukee, Wis. It



is made with the entire base, reservoir, cylinder and pump in a one-piece discasting which is said to prevent any leakage. The model TA-7 is of 1½-ton capacity.

[Other Products Page 42]



Prest-O-Lite Battery

THE Prest-O-Lite HiLevel battery, type H1-17, is said to have four times the usual water space, and in normal service, to require re-watering only three times a year. The separators are wood and rubber and the positive plates are 3/32 in. thick. Made by the Prest-O-Lite Battery Co., Inc., of Indianapolis, Ind., it has 17 plates per cell and is rated at 110 amp. hrs.

Simmons Floor Jack

THE Simmons Mfg. Co., Cleveland, Ohio, announces the addition of a new hydraulic garage floor jack to its Silver line.

Designed to handle passenger car, truck,



or bus, the new jack, with a lift of 17 in. and a low-starting height of 5 in., easily handles all knee-action cars.

Water Pump Packing

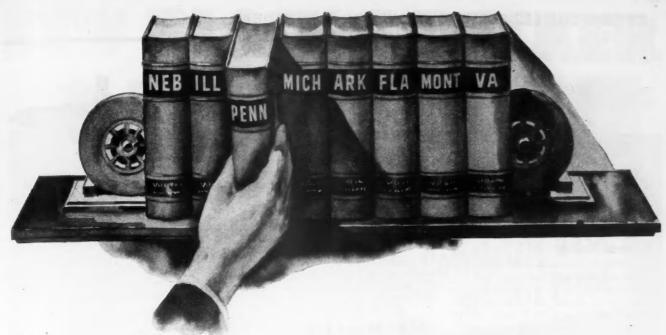
THE U. S. Asbestos Division of Raybestos-Manhattan, Inc., Manheim, Pa., has developed a Grey-Rock water pump packing that is semi-metallic, consisting of asbestos fibers and non-frictional metal in ring form. These rings are properly sized for most cars and trucks and they are said to form a tight, long-lasting seal.

Weed Pliers

AMERICAN CHAIN CO., Bridgeport, Conn., is marketing the Weed Pliers, which have been redesigned with heavier and longer handles to make the replacement of cross chains on the Weed tire



chains easier and quicker. They are priced at \$1.60 each.



Trucks, Bendix B-K Power-brake-equipped more than MEET

WHEREVER your trucks travel-singly or as tractortrailer units-they're well and safely within the law if they have Bendix B-K Controlled Vacuum Power Braking.

Bendix, pioneer of Power Braking, pioneer of four-wheel braking, and world's foremost brake builder, has furnished more than 96% of all the automotive Power Braking equipment in service. When you turn to Bendix you turn to Power Braking headquarters.

Light in weight, simple in design, eleven years proved in performance, and quickly installed on almost any motor vehicle, Bendix B-K Vacuum Power Braking saves muscle, saves tires, saves brake lining wear, saves nerves, saves property and saves lives.

You should have genuine Bendix B-K Power Braking on all of your trucks. The cost is extremely moderate and Bendix installation and service facilities are nation-wide. Send the coupon for details.

STATE LAWS!

Controlled Vacuum POWER BRAKING

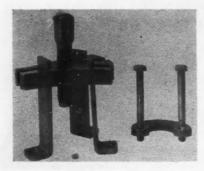


BENDIX PRODUCTS CORPORATION
(Subsidiary of Bendix Aviation Corporation)
401 Bendix Drive, Dept. 421, South Bend, Indiana

Send full details as to cost and installation of Bendix B-K Vacuum Power Braking on the following vehicles:

EYEING THE BIG SERVICE SHOW FOR FLEET IDEAS

(Continued from Page 40)



Wheel Puller

THE Plomb Universal wheel puller, recently developed by the Plomb Tool Co., 2209 Santa Fe Ave., Los Angeles, Cal., is designed to handle all wire and disc wheels with 4, 5, 6 or 7 studs on the drum. The legs which bolt to the wheel are not fastened rigidly to the puller, but slip into slots, and so can be quickly adjusted to any drum with studs in a circle from 2 to 7½ in. in diameter. A special adapter is furnished for Ford V8's which makes it possible to pull the hubs on these cars without removing the wheels.

Doubleduty Chains

MORE than double mileage and improved anti-skid traction is claimed for the "Doubleduty" bar - reinforced tire chains now being produced by the Pyrene Manufacturing Co., Newark, N. J. The case-hardened reinforcing bar welded across each link provides two thicknesses of metal.

Ring Gear Riveter

A RECENTLY announced ring gear riveter that is universal in its application is being made by the Manley Mfg. Division of the American Chain Co., Inc., York, Pa. Its base fits all Manley presses, and a simple change of the anvil or die is said to make it suitable for either light or heavy work.

Weidenhoff Analyzer

MODEL H Moto Vita carburetor analyzer has just been put on the market by



method of analyzing exhaust gases.

Joseph Weidenhoff, Inc., 4346 Roosevelt Rd., Chicago. It is a portable outfit and may be removed from the stand. Because a certain amount of water vapor is always present in exhaust gases, provision has been made in this instrument for draining this water automatically. The combustion meter uses the Wheatstone Bridge

Oil Control Ring

HASTINGS MFG. CO., Hastings, Mich., has just announced a new oil control ring, known as Steel-Vent. This ring consists of four pieces; two steel segments, a ventilating spacer and an expander of spring steel which fits back of the assembly. These steel segments work independently of each other and are said to conform to



the cylinder wall regardless of taper. The maker states that only one ring per piston is required to effectively stop oil pumping.

Allen Motor Tuner

THE Allen Electric & Equipment Co., 2101 N. Pitcher St., Kalamazoo, Mich., is introducing a new motor tuner, model E-166,



which is portable so that it can be easily moved to the truck being tested. With this outfit it is possible to make electrical tests on the battery, starter, generator, etc. AC current is used for the coil and condenser heaters, while all other tests are made with the 6 volt battery located in the cabinet.

McKay Tire Chains

McKAY tire chains are now being furnished with multi-grip double reinforcing bars which are set at an angle to the path of travel. These bars project above the level of the cross chain links which position is said to aid in preventing side skid. The bars are electrically welded to the tread links of the cross chains. McKay Co., Pittsburgh.

[Other Products Page 94]



Black & Decker Drill

THE Black & Decker Mfg. Co., Towson, Md., has just announced a ½-in. Junior electric drill as a companion tool to the ¼-in. Junior recently announced. It is equipped with a universal motor for either AC or DC current, and can be supplied for 32, 110, 220 or 250 volts. This new model will drill holes in steel up to ½ in. in diameter, and will drive wood augers up to a 1¼-in. size. Weight is 10½ lbs. Price \$35.00 each.

Upholstering Fabric

THE Fabrikoid division of E. I. duPont de Nemours & Co., Wilmington, Del., has developed a new heavy-duty upholstering fabric for seat cushions and backs on trucks and buses where a tough, waterproof and sun-resisting material is required. "Pontine," as the new material is called, is a rubber fabric said to have a very tough surface with great tensile strength. It was designed to meet the requirements of commercial vehicles in withstanding hard and even abusive wear under any climatic condition. It is available in a number of different colors and qualities to meet specific needs.

Graco Lubricator

GRACO Red Head Lubricator handles grease from the original 25 lb. container

without any transferring of the lubricant. It will accommodate all lubricant pails up to a diameter of 121/2 in. and a height of 133/4 in. The operation of this unit when connected to an air line is controlled by



a dual range control valve, the first stage of which gives a limited volume of lubricant, and the second stage full volume. The maximum pressure developed is said to be approximately 36 times the air pressure used. The retail price of the outfit is \$82.50. The Gray Co. Inc., 140 S. 10th St., Minneapolis, Minn., is the maker.

NEW BLACK & DECKER PORTABLE ELECTRIC SANDERS



Save Time, Labor and Money

on Auto Body Work, Painting, Welding, Metal Finishing

THERE'S no question about it—a Black & Decker Sander is the handiest tool in the shop for auto body work. Nothing can equal it for quickly removing paint, rust and scale when repainting or touching-up—for smoothing welds and refinishing metal surfaces. Can also be used for rubbing down lacquer and removing "orange peel" with felt rubbing pad.

The new Black & Decker Sanders offer many improved features, at no increase in price. New, larger, more powerful motors. New dust-proof and grit-proof construction. Improved dust-proof switch. Air-sealed commutator and brush compartment. Grease and labyrinth seals to protect gears and bearings. New slot type

ventilation which can't clog and cause an overheated motor.

FOUR MODELS: 7-Inch Light Duty, for intermittent shop use, \$48.00. 7-Inch Heavy Duty, for continuous heavy duty work, \$75.00. 7-Inch Super-Service Sander, for continuous use on high speed production work, \$85.00. 9-Inch Standard Sander, for shops desiring larger working area and lower speed for intermittent use, \$88.00. Rubbing pads for all sizes. Universal motors. Standard voltage, 110—also available for 220 and 250 volts.

Ask your Black & Decker Jobber for a demonstration—or write for complete details. The Black & Decker Mfg. Co., 732 Pennsylvania Ave., Towson, Md., U.S.A.

DRILLS
DRILL STANDS
POLISHERS
FLEX DISC SANDERS
HEAT GUNS



BENCH GRINDERS

PORTABLE GRINDERS

VIBRO-CENTRIC

VALVE SEAT GRINDERS

VALVE REFACERS

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NEWS

ATA to Classify Rates in 2 Books

Ratings for Less-Than-Truckloads and Volume Freight

Two books of Motor Freight Classification for the trucking industry will be published by the National Rates and Tariffs Committee of the American Trucking Associations, Inc., according to a recent announcement.

One classification will contain less-thantruckload ratings and the second will show ratings for volume shipments. The classification rules are being revised, it has been announced, to conform to the needs and advantages of the industry and descriptions of commodity items are being simplified wherever possible. Present rat-

ings are to be preserved.

The work of preparing the books has been turned over to a committee of about 12 traffic men, representing some of the larger trucking companies. The publication of ratings for less-than-truckload traffic will provide: eastern territory, classes 1, 2, 3, 4 with additional provision for the class heretofore called R 26; in the southern territory, classes 1, 2, 3, 4, 5 and 6, and in the western territory classes 1, 2, 3, and 4. The edition volume ratings will list quantity weights to coincide with those provided in the classification now most universally used and will show the same ratings for the classes already listed with the addition in the eastern territory of classes 5 and 6 and class 7 in the southern territory and classes 4 and 5 for the western territory.

SAE Meets Jan. 13

The Society of Automotive Engineers has tentatively completed its program for the annual meeting scheduled for the Book-Cadillac Hotel, Detroit, Jan. 13 to 17, 1936. Among the papers which will be read at the meeting will be "The Operator's Woes On Lubrication" by F. L. Faulkner; "The Traffic Safety Problem" by Miller McClintock; "Cetane Rating and Diesel Fuel" by P. H. Schweitzer and T. B. Hetzel; "Diesel Fuels—Plain and Fancy" by J. R. MacGregor; "Diesel Engine Problems" by O. D. Treiber.

550 Fruehaufs for Keeshin

Orders for building 550 trailers for the Keeshin Transcontinental Freight Lines, a trucking system with headquarters in Chicago, have been received by the Fruehauf Trailer Co.

Ford Production Up

Ford reports the largest November production of cars and trucks in the history of the company with a total of 110,559 units.

Mohun Leaves Reo

Ward M. Mohun has resigned as salesmanager of the domestic division of the Reo Motor Car Co.

Truck Sales Up 26%; 11 Months' Output Rise Is 24%

New truck registrations for the first 11 months of 1935 amounted to approximately 477,000, according to an estimate based on actual returns for 10 months and 33 states for the month of November. This is an increase of approximately 26 per cent over the 379,816 registered during the first 11 months of 1934. November registrations amounted to 35,000, an increase of 26 per cent over the registrations in November. 1934.

Production for 11 months amounted to 691,715 units as against 556,783 for the comparable period of 1934, a gain of about 24 per cent. November production amounted to 61,053 as against 35,107 during November, 1934, a rise of about 71 per cent.



Dodge Promotes Three

Harold Bates, above left, and G. A. Orphal, above right, have been appointed assistant directors of truck sales and H. R. Ude, above center, has been placed in charge of the special truck equipment department of the Dodge truck division of Chrysler Corp. Appointment was also made of Allison Miller as truck sales manager of the Chicago region.



F. T. Macrae, who has been appointed vice-president in charge of the Indiana truck and bus division of the White Motor Co. He will be in a c t i vecharge of Indiana production and sales

Couper Is Pee Cee V-P

Donald Couper, sales and advertising manager of the Pee Cee Mfg. Co., makers of automotive parts and equipment, has been elected vice-president of that company.

Clark Opens Offices

C. P. Clark, formerly Deputy Administrator in charge of the Transportation Section of the NRA will engage in private practice before the Interstate Commerce Commission and other Federal agencies, according to a recent announcement. He has opened offices at 726 Jackson Place, N. W., in Washington, D. C.

[Additional News Page 46]

Employers Have a Duty to Employees

What is the responsibility of employer to employee?

Speaking on the subject to members of the Associated Business Papers, Inc., S. Wells Utley, president of the Detroit Steel Casting Co., and past president of the Michigan Manufacturers Association, said:

"The supreme question confronting the American people, transcending in importance all other questions combined, is whether they will continue to cherish and defend the principles which have been the mainspring of our progress, or whether they will abandon them for those under which man stood still for thousands of years. I am not fearful of the verdict of the American people provided they know the truth; provided they realize that those who live by the bounty of government are not citizens but subjects; that a "kept" man cannot be a free man; that the man who gets his income from government, whether it be through wages, bonuses, doles or government contracts, has lost both his right and his ability to criticize and oppose the government from which he gets his living. I am fearful lest, beguiled and bewildered by meaningless promises, confused by the glittering balls being tossed into the air, they fail to realize the insidious nature of the things they are doing, and fail to recognize the ultimate end of the road they are traveling.

"What then is our responsibility to our employees in this critical situation? If we honestly believe that American principles as exemplified in the American system have given to the employee a greater opportunity for advancement, a greater opportunity for happiness, a larger share in the wealth produced by his hands, than the principles which have operated in any other social system, then most assuredly we have a responsibility to help him to protect those principles for himself and his children. We as management have advantages which he cannot enjoy; we possess sources of information which he cannot have. We meet in great assemblages, where we bring together the best of our economic minds, the best of our monetary minds, the best of our legal minds, together with men skilled in all lines of business. It is our responsibility to make available to him, in language which he can understand, the lessons and the information we are privileged to gather.

"In this present crisis, the greatest which has confronted us since the Pilgrims landed on these shores, we have a tremendous responsibility for leadership to these men. Will we accept it or will we shirk it? Oh, I know if you put a notice on the bulletin board telling employees they must do this or that, they must vote for some certain man, you'll not get a satisfactory reaction. As a matter of fact, you'll get exactly the same reaction from them that you yourself have when someone orders you about. But

(TURN TO PAGE 46, PLEASE)



Georgia Power Co. chooses Exides for replacement

Georgia Power Co. have an enviable reputation for dependable electric service. This they have maintained by nipping in the bud any power-line trouble caused by accidents, fires or storms. Their repair trucks must be ready to start anywhere, without an instant's delay. It is not surprising that this company depends almost 100% on Exide Batteries for replacement.

In addition to their fleet of 550 trucks and cars, Georgia Power Co. operate a fleet of 90 motor coaches—in which Exides are also used for replacement. Mr. Warren Pollard, automotive supervisor for this company, says, "We have found Exide both dependable and economical in every type of equipment we operate."

The experience of this and other large operators throughout the country is convincing evidence that Exide Batteries will help to cut costs for you. Exide Engineering Service, conducted by trained and experienced battery engineers, is available to fleet operators, free. Why not let Exide Batteries and Service start working for you?

THE ELECTRIC STORAGE BATTERY CO., Philadelphia
The World's Largest Manufacturers of Storage Batteries for Every Purpose
Exide Batteries of Canada, Limited, Toronto

EXIDES FOR DIESEL STARTING

Specially constructed Exides of three different types have been developed for Diesel starting. Packing maximum power into minimum weight and space, these special Exides meet the low-temperature starting requirements of all high-speed Diesels.

Exide BATTERIES FOR EVERY TYPE TRUCK

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NEWS

(CONTINUED FROM PAGE 44)

if you devote a small part of the thought, the tact, the psychology to selling these men on your leadership, that you do to selling some prospective customers on the quality of your product, you will find that these employees will follow you into the very jaws of hell, and if you don't do this, in the not-distant future, you will find yourself, with them, in the very bottom of hell, with no road left for retreat."

Cleveland Welding

Through a stock purchase arrangement just completed, controlling interest of The Cleveland Welding Co. has been returned to substantially the same Cleveland hands that held control prior to the Company's affiliation some five years ago with Motor Wheel Corp. of Lansing, Mich.

IHC Enlarging Truck Plant

Contract for a new building at the Springfield, Ill., motor truck works of the International Harvester Co. has been let to A. G. Samuelson, Inc., of Springfield. The new building is the principal item in a \$750,000 plant expansion program announced four months ago.

Reo Gets Order for 1199

Reo Motor Car Co. has received an order for 1199 trucks from the United States Government. The order calls for immediate delivery of 920 2-ton dump trucks and 279 1½-ton dump trucks for the Department of Agriculture and amounts to well over \$1,000,000.

Chevrolet Shifts Howard

H. F. Howard has been appointed Chevrolet plant manager at Baltimore. D. G. Frazier succeeds Mr. Howard as manager of the assembly plant at Flint, Mich

G. M. Ups Grossman and Emmert

H. C. Grossman, formerly assistant secretary, was elected vice president of General Motors Truck Corp. and General Motors Truck Co. R. J. Emmert, factory manager, was made vice president of General Motors Truck Corp.

Alldredge Promoted

M. H. Alldredge has been appointed sales manager of Thompson Products, Inc., Michigan plant at Detroit.

Otis Is NAM Director

Joseph E. Otis, Jr., president of Stewart-Warner, Inc., has been elected a director of the National Association of Manufacturers.

Borden Buys 300 Divcos

Continental - Divco Company, Detroit manufacturers of Divco house-to-house delivery vehicles, has received an order from the Borden Company, New York, for 300 model "S" Divcos.

Joyce-Cridland Opens Office

The Joyce-Cridland Co., Dayton, Ohio, announces the opening of a division office at 910 S. Michigan Ave., Chicago. Fred T. Rix is division manager.

FWD Ups Morton

H. W. Morton has been appointed manager of the Harrisburg, Pa., branch of the Four Wheel Drive Auto Co.

Thermoid Acquires Triplewear

Thermoid Co. announces the acquisition of the Triplewear Brake Lining Corp., with main offices located at Paterson, N. J.

Ditwiler Changes Name to Hercules

The name of the Ditwiler Mfg. Co., Galion, Ohio, manufacturers of Hercules steel dump bodies and hoists, has been changed to Hercules Steel Products Co.

CCC Is Heavy Truck Customer

Heavy equipment purchased for the Civilian Conservation Corps between April 1 and Nov. 1, 1935, included approximately 25,000 trucks, 1733 tractors and 1145 tractor trail builders, according to Robert Fechner, director of Emergency Conservation Work. The total cost of this equipment was \$29,375,938.60.

Harold E. Larsen

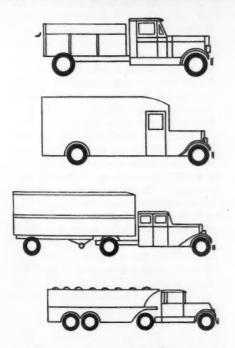
Harold E. Larsen, Pacific coast representative of the Timkin-Detroit Axle Co., Detroit, died Nov. 20th at his home.

New Truck Registrations by Makes by Months

| | Autocar | Brockway | Chevrolet | Diamond T | Dodge | Federal | Ford | G M. C. | International | Mack | Reo | Sterling | Stewart | Studebaker | White-Indiana | Miscellaneous | Total |
|---|-----------|------------|----------------------|----------------|------------------|------------|----------------------|--------------|----------------|------------|------------|----------|-----------|------------|---------------|---------------|--------------------|
| January | 71 79 | 86 91 | 9,867 8,917 | 550 406 | 5, 141 2, 581 | 152 120 | 13,260 6,650 | 858 555 | 3,513 2,284 | 114 161 | 380 289 | 10 | 42 61 | 127 98 | 308 284 | 280 318 | 34,759 22,903 |
| February 1935 February 1934 | 41 58 | 54 81 | 11,701 10,718 | 499 420 | 3,271 2,723 | 113 121 | 14,330 6,459 | 570 453 | 3,174 2,150 | 63 144 | 292 339 | 10 14 | 34 60 | 107 109 | 217 357 | 321 270 | 34, 797 24, 476 |
| March | 56 64 | 67 117 | 13,744 15,112 | 534 501 | 4,284 4,154 | 132 170 | 16,805 8,632 | 850 717 | 3,673 2,841 | 100 145 | 389 461 | 14 10 | 60 67 | 135 126 | 258 452 | 410 315 | 41,511 33,884 |
| April | 79 88 | 109 104 | | 568 534 | 5,708 4,367 | 177 178 | 17,943 13,167 | 870 839 | 4,554 2,729 | 159 206 | 449 527 | 31 4 | 62 90 | 189 123 | 309 558 | 554 318 | 46,785 38,882 |
| May | 78 146 | 97 117 | 16,284 14,148 | 570 508 | 5,381 4,441 | 193 186 | | 883 1,031 | 4,807 2,849 | 189 212 | 616 578 | 5 10 | 60 103 | 229 193 | 294 544 | 691 375 | 47,968 39,831 |
| June | 73 95 | 113 108 | | 572 481 | 4,911 3,729 | 178 196 | | 901 884 | 4,710 2,435 | | 439 504 | 16 9 | 69 67 | 218 133 | 258 447 | 721 350 | 48, 243 34, 778 |
| July | 99 | 114 147 | | 593 457 | 5,336 4,224 | 202 182 | | 857 951 | 5,308 2,548 | 147 202 | 439 416 | 19 17 | 85 67 | 219 156 | 336 396 | 808 432 | 51,243 37,490 |
| August | 91 61 | 143 107 | | 591 508 | 5,723 4,754 | 219 162 | | | 5,231 2,809 | 145 143 | 476 439 | 9 15 | 94 56 | 264 138 | 354 337 | 720 383 | 50,355 40,790 |
| September 1935 September 1934 | 76 118 | | | 555 420 | 5,901 4,086 | 209 158 | | | 5,199 2,538 | | 427 369 | 9 | 94 31 | 188 153 | 547 238 | 519 285 | 43, 234 37, 225 |
| October | 94 169 | 143 118 | 10,310 15,723 | 608 535 | 7,241 4,669 | 206 200 | | | 5,845 3,238 | | 604 364 | 17 16 | 104 52 | | 906 460 | | 43, 243 40, 878 |
| 10 Months | | | 145, 451 138, 292 | 5,640 4,770 | | | 159, 212 113, 844 | | | | | | | | | | 442, 13 351, 12 |
| % Change10 Months | -22 | -1 | +5 | +18 | +33 | +6 | +40 | +8 | +74 | +1 | +5 | +31 | +8 | +32 | -7 | +110 | +2 |



*Actual Bonus-Load of this Truck Body built by Baltimore Transfer Co., Baltimore, Md.



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8,243 4,778

1,243 7,490

0,355 0,790

3,234 37,225

13, 243 40, 878

42,138 51,127

+26

URNAL

Every type of truck body will give you a Bonus-Load, if you build of Alcoa Aluminum.

IT PAYS OUT IN COST PER TON

The day of needless weight is done.

Alcoa Aluminum takes needless weight out of the truck body and makes room for a Bonus-Load every trip.

Not one red penny of extra operating expense will ever be charged against that Bonus-Load, because gross weight is not increased. As a matter of fact, expenses are reduced by the lower dead-weight when the truck is running empty.

If you are not faced with the problem of keeping within gross weight limitations, you can still save money every mile with an Aluminum body. The great weight saving means measurable reduction in operating expense. Many operators find it possible to use lighter chassis and smaller engines for the same loads.

Body builders in every section of the country are thoroughly experienced in building Aluminum bodies. These lighter bodies cost a

little more, of course, but the little extra is quickly paid for out of savings. After that, clear profit for hundreds of thousands of miles. ALUMINUM COMPANY OF AMERICA, 2139 Gulf Building, Pittsburgh, Pennsylvania.



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ALCOA · ALUMINUM

We Cut Tire Costs 82%

(CONTINUED FROM PAGE 15)

sub-station foreman jerks it off; sends the tire to be repaired to the Seattle plant where all tire work is centralized. From his stock he replaces the tire and the defective rubber is duly repaired.

To facilitate this work we use a perforated tag, serially numbered and made in duplicate. When a defective tire is changed, the operator notates the following data on this tag: where changed, date, truck number, tire off number, tire on number, driver. The upper part of the tag is wired to the defective tire. The duplicate is torn off and mailed to headquarters. When we receive this card, a duplicate tire is immediately shipped to the station, so that the tire inventory at sub-stations is kept up constantly.

The "stitch-in-time" is the most important phase of tire inspection. Once I carefully measured and marked a small cut, 3/8 in. long. In three weeks this tiny cut had extended to 11/8 in.—just ripe for a blow-out. An insignificant plug in such a hole or bruise can easily add from 24,000 to 40,000 miles to a tire. To properly examine tires for such small defects, we find it imperative to jack up every wheel.

Our best tires go on the front wheels, not as a matter of economy or efficiency, but essentially as a matter of safety for the driver and truck. A blow-out on a front wheel usually lands in the ditch with serious consequences. Tires that have passed the half-way mark of usefulness are placed on trailers, for these wheels do not offer traction friction; they are merely pulled along, and a tire that might not be safe on a drive wheel can travel a good many thousand more miles on a trailer.

In this connection I might say that switching tires to trailers saves a good deal in retread and recap expense. However, we find it a real economy to retread tires ranging in size up to 36 x 6, whenever carcass conditions warrant this type of repair. In fact, we increase the mileage of this size tire from 15,000 to 25,000 miles by retreading. The larger size tires do not, as a rule, warrant retreading, as the heavier loads such tires support wear down the surface rubber too much. In such cases, when carcasses are sound. we resort to the recapping operation to prolong tire mileage.

We have never resorted to regrooving of tires, for if a tire is worn smooth, and is sound, it goes on a trailer, and otherwise we retread instead of regroove. To retread a tire for trailers would be false economy, for without new treads we get up to 40,000 miles out of trailer tires, and we have had cases where mileage has been over 100,000 miles. On our fleet as a whole, tire mileage ranges from 18,000 to 50,000 miles, while average mileage between repairs is 33,031 miles.

And the one thing to which we attribute this achievement is regular inspection with wheels *jacked up*, which we have found pays bigger dividends than any other form of servicing.

Bearing Maintenance

(CONTINUED FROM PAGE 19)

two exaggerated for clarity. In Fig. 1 it can be seen that the clearance between the bearing and the journal is the same all around the bearing surface, which is an ideal condition. The inside diameter of the bearing and the outside diameter of the journal are the same in every direction. If the bearing cap is filed it is obvious that the vertical diameter of the connecting rod bearing has been shortened and that the bearing is no longer round. It has become oval-shaped and the result is a fit such as is illustrated in Fig. 2. In filing the cap nothing has been done to shorten the distance from left to right so the clearance remains the same at these points. The actual bearing surface then is two narrow lines at the top and bottom of the bearing which are under sufficient load to break the oil film and create abnormal heat at these points where there is no way to get rid of it. The bearing, as a result,

In addition to the bad fit on the bearing two little reservoirs of oil have been created at the sides of the bearing. These reservoirs will be emptied by the motion of the crankshaft and they will be emptied right on the cylinder walls which will provide an oversupply of oil for the cylinders and undoubtedly cause excessive oil consumption. Badly fitted bearings do not always fail quickly enough for the mechanic to realize that the adjustment was bad. But the badly adjusted bearing has an insidious way of contributing to excessive oil consumption which the mechanic usually blames on the piston rings when the bearings are giving the rings a terrific overload which they cannot handle.

Fig. 3 is an edgewise view of the same connecting rod bearing that was taken up in Fig. 2. At a point where tight assembly is required there are two rocker surfaces which, in addition to providing an excellent outlet for oil the cylinder walls, make it impossible to get a tight joint and to get alignment of the connecting rod in relation

to the cylinder. It is safe to say that a high percentage of connecting rod failures will be found where this condition exists. The loose joint creates havoc in the engine when it lets go.

If in the filing operation the connecting rod got safely by the error illustrated in Fig. 3, there is still the one illustrated in Fig. 4. If the cap is filed so that it is pulled to one side upon assembly with the rod, the bearing load instead of being distributed over the bearing is concentrated in spots at the right side of Fig. 4 and again it is impossible to align the connecting rod with the cylinder. In addition this condition brings up another important factor of bearing fit.

In pressure-lubricated engines the clearance between the bearing sides and the journal end faces (bearing side play) is extremely important. Too little clearance will starve the cylinder walls of oil and too much clearance will cause an oil throw-off that piston rings cannot control. The ideal clearance at this point is .005 to .006 in. and the safe range for original installation is .004 to .008 in.

If the cap has been pulled to one side as in Fig. 4, it is obvious that the distance from A to B is longer than the width of the original bearing and there is not much in the nature of a labor operation that can be done about it. With the cap operating against the journal end face with little or no clearance, heat will be created in a local area and since it cannot be successfully carried off, the bearing will suffer. It will crumble. The end clearance can be measured easily with a shim gage and consideration of this clearance should never be omitted when bearings are checked.

Both of these last two errors can be avoided to a certain degree in filing caps by placing the file in the vise and rubbing the cap over it. But then other difficulties arise and in the final analysis they could all be avoided by replacing the bearings instead of attempting to "take them up."

As a final check bearings can be submitted to the oil drip test. This test consists of hooking an external oil reservoir up to the bearing oil lines and then applying air pressure. The drip from each bearing is then counted and compared to a normal number of drops which is between 25 and 50 drops per minute with the engine being turned over by hand at slow speed. Equipment to make this test is available from the Federal-Mogul Corp. With this equipment the pressure can be set to duplicate oil pump conditions as there is an air gage and air pressure regulator.

Truckers Must Learn to Sell

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shipper would go to the traffic man and say, "Mr. Brown, there is a Mr. So and So outside to see you. I can't imagine what he wants because he is very roughly dressed." Mr. Brown steps out to the reception room and meets a husky young fellow with a bone-crushing handshake. "Hello, Mr. Brown, I've just landed in town with a load from Philadelphia. Got the truck downstairs but thought I'd stop up to see if you can give me some business. I'm going back tonight and can fill the truck up for you at almost any rate you say. I'm running loads in here every few days now for the Killemquick Drug Co. and it's good paying stuff." Brown, being a decent sort, liked this hale and hearty man. Moreover, Brown knew that his job was to keep shipping costs down as much as possible. Thus our friend the truckman got his return load. Quite likely he got other business from Brown.

Considering the circumstances this was fair enough solicitation. It was the kind of thing that put many small truck operators on their feet and allowed them to expand. But today these methods will not produce enough of the right kind of freight business because the circumstances are entirely different. Interstate trucking has received the recognition, reached the dignity, or been given the burden of regulation. The competitive climate has changed. Consequently, much of the truck's future development will depend upon a business-like preparation for and expert handling of the selling end of the business. Whether you like it or not this is the challenge every motor carrier must meet if he is not to become lost in the storm.

SELLING transportation, as you know, is not at all like selling an automobile when you can take the prospect out, whizz him around the corner, knock the whiskers off a traffic cop, and triumphantly stop on a dime. Rather, you are selling a service; or, even more exactly, you are selling a result. Because you can't carry a sample with you it is necessary that you bring to the selling job every bit of information about that result. That is to say, you must not only know your own rates and services, but you should also know all about the rates and services with which you must compete in obtaining the business. Don't say to the shipper, "I'll send you a tariff when I get back to the office." Instead, tell him what your published rate is from here to there on his commodity. Tell him the time you make, the frequency and dependability of your service, the promptitude with which you adjust claims. Tell him how much lower your rates are than competitors, when such is the case. Tell him how much faster your service is than competitors, when it is really faster. In brief, be able to give the shipper a quick comparison of your rates and service with those of your most formidable competitors. Facts, not orations, will get the business you are equipped and organized to handle.

Some of these remarks may sound rather obvious. However, the writer has

been on the shipper's side of the fence long enough to know that truck operators have too seldom observed the most elementary selling principles. Sometimes a truck operator will adopt the "hat in hand" approach. This is often done—with some mumbo jumbo about being a poor fellow trying to get along in the world and fighting the big bad railroads. It doesn't get across. Shippers are interested in rates, service, insurance, financial responsibility, and references. The chances are the fellow who works for the shipper also has his own little financial problems and

(TURN TO PAGE 62, PLEASE)





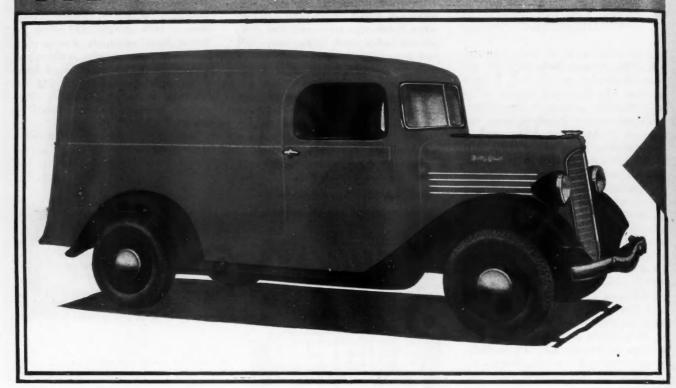
"... the size of the gears has been reduced and the speed and power output have been increased to such an extent that EP lubricants... are coming into more general use."

"... both the mild EP and the powerful EP lubricants are of real commercial importance at the present time."

When gear and bearing failures are occurring too frequently, a change to "STURACO" frequently proves a practical and economical remedy. Investigate this low cost "Insurance Policy" by writing for Bulletin No. 4.



STEWART TRUCKS HAVE WON



STEWART ACKNOWLEDGES NO PEER IN ALL TRUCKDOM

From the Buddy Stewart to the largest model every Stewart truck is honestly built—honestly rated—honestly priced. Stewarts bring to truckdom a new conception of value—longer life—

greater gasoline economy—greater freedom from repair bills—infinitely greater dependability. Built by an exclusive truck maker with a twenty-three year record of success.

BUILT TO LAST MANY YEARS

Stewart owners do not figure depreciation on a 2 or 3 year basis. They know by experience that the average life of a Stewart is many years—often having given 8, 10 and 12 years of constant service with minimum repair bills. Check

through the new Stewart features before you buy. Nothing is so convincing of Stewart quality as a side by side comparison with any competing truck. Stewart performance will speak for itself. Catalog gladly sent on request.



STEWART MOTOR

BY COSTING LESS TO RUN

"BUDDY" FEATURES

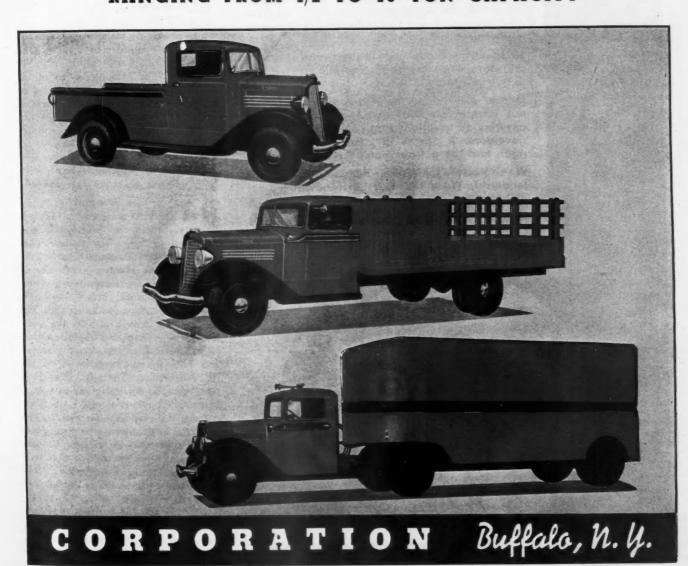
- × 100% Truck Chassis
- * Economical 4 Cylinder Truck Motor
- * 20% to 40% Saving in Gasoline, Oils and Tires
- * Full Floating Roar Axlo
- * 15 Took Hydraulic Brakes, 10 Inch Clutch
- * Truck Frame and Truck Springs
- * Oversized Electrical Equipment

ana only

7495

CHASSIS F. O. R. BUTFALO

15 MODELS 76 WHEELBASES RANGING FROM 1/2 TO 10 TON CAPACITY



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(CONTINUED FROM PAGE 59) isn't at all anxious to hear about someone else's. Besides, an air of confidence and success will make a better impression than a suggestion of desperation.

I. C. C. regulation should make the selling of trucking service easier in one important respect. That is, since your rates and service are a matter of public record, and since they must be adhered to, shippers will lose the skepticism they have often felt toward the trucker's dependability. Possibly some readers will take exception to this remark. Nevertheless, it is a fact that many

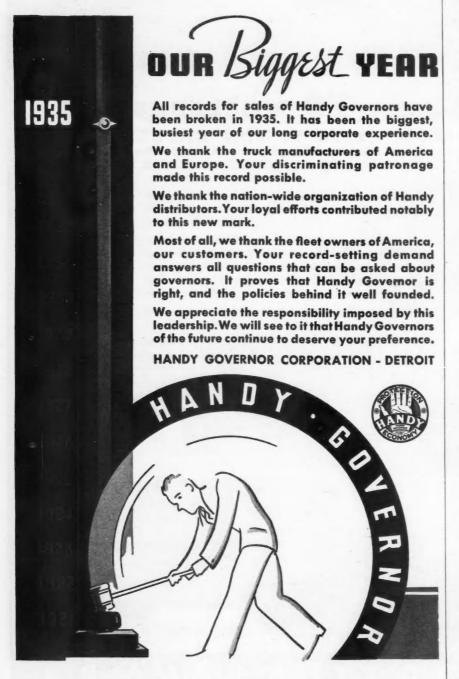
truckers, usually shoestring outfits, in their eagerness to obtain business and establish contacts with large shippers, have made absurd rate quotations and promises. While they meant well enough, they could not keep their promises. As a consequence, the entire trucking industry became unreliable in the minds of many shippers. I have even heard railroad solicitors sneer that trucking companies can't be relied upon, using this as a sales argument.

BUT with your rates and service on file with the Commission, and their avoidance or capricious revision pro-

hibited, the shipper should soon have as much confidence in a trucker's dependability as in a railroad's. It may sound a bit exaggerated, but it is true that industrial traffic men have a sort of reverence for any tariff with an I. C. C. number on it. They know it has a definite legal status; that it cannot be changed without official approval. Heretofore, the promise-breakers of the trucking industry did so much damage that freight solicitors for dependable truckers found they had to lead with their chins. Now they can go into it with both hands swinging.

However poor you may think railroad solicitation methods are, and they are often as poor as you think, still it is indisputable that the railroads have the force of habit and tradition back of them. Their mistake was in depending wholly upon this habit and tradition to win for them against the trucks. Now they are beginning to make the fight they should have made at the beginning. Had they done so maybe the motor truck would not have them quite so terrified. Moreover, the Eastman report has helped to wake them up. Since railroads have large organizations upon which to draw for ideas and with which to execute them, it may well pay the trucking industry to keep an occasional eye upon the sales tactics of railroads. For example, some of the railroads make a habit of following up telephone rate inquiries by personal calls. Of course, they only do this when the traffic is competitive, especially desirable, and from a shipper not known to be antagonistic to their line. This kind of solicitation has proved quite effective when not overworked.

ONE distinct advantage railroads have over trucks in securing business results from their often numerous offline offices. For example, a large company plans to erect a new plant in Kansas City. The company's main office is in New York. The Pennsylvania has an offline office at Kansas City. The Kansas City papers publish the news first. The manager of the Pennsylvania's Kansas City office reads about it and immediately sends word to his New York office. The railroad assumes some material for the plant will originate in the territory it serves. A Pennsylvania Railroad solicitor calls on the industrial company's traffic manager to obtain a promise for at least a share of the traffic in construction materials for the new plant. Sometimes the railroads know of these things even before the traffic manager back in New York. If it is not the construction of a new plant, it might be a large order for pipe, a new distributor of the company's products, or the awarding of a



contract to the company by the city or state.

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It is admittedly difficult for any but the largest truck operators to combat this sort of quick-fire railroad solicitation. Perhaps the most effective way is for truckers to establish some sort of reciprocal arrangements with other motor carriers in large centers where they do not have branch offices. As motor carriers tend to establish joint rates and services with other truckers they will be in a better position to make such reciprocal arrangements. But unless it is really reciprocal it will die aborning.

Incidentally, trucking companies should make it a habit to keep their agents in off-line cities supplied with complete data as to current rates and services. Many of these off-line agents for truckers have been so only in name; they have been indefinite if not entirely in the dark regarding rates and operations of those whom they purport to represent. This has lost much business for the trucks in instances where shippers had to have immediate information; the fact that it was rush freight made it a "natural" for the motor carriers. The fundamental difficulty with such agents and reciprocal arrangements is that all of us are human enough to ignore the other fellow's interest in favor of our immediate problems, even though a broader attitude would return greater profits. No one will dispute the superior advantages of having your own offline offices. But when it is not possible an attempt should be made to fill the gap.

ONE of the first principles of modern selling and merchandising can be adapted to the selling branch of trucking. This principle is that the market must be conceived and the sales effort directed to that market. In other words, you should determine the kinds of freight that move in your territory; who ships it and who receives it; how it moves now and what movements you are in the best position to handle and compete for. Trade papers are often valuable sources of information for one anxious to learn about present and prospective freight movements. Study them for the activities of individual companies! The reports of the Shippers' Regional Advisory Boards are sometimes helpful. The Eastman report contains exhaustive material about major traffic flows by geographical divisions. Chambers of Commerce might drop a grain or so of information. Local newspapers print the news first. A casual remark at a traffic club meeting has often been turned into freight revenue.

Not unrelated to the task of con-

ceiving the market is the question of "call control." This is simply the common sense practice of having salesmen submit a daily report of persons called upon and the business, information and general result obtained from each call. If such reports are expected of solicitors solely to check on their activities they are only an irritant. But if these daily reports are used with intelligence and consistency they can become of positive value. In that case no salesman would resent them.

Suppose, for example, a truck solicitor calls on a man and fails to get any business but learns of a prospective movement of unusually desirable freight. Possibly the freight is not due to move for several months. If call control is not in use the salesman makes a mental note of it or jots the fact down on the back of an envelope. Two months later he might recall it, or have retained the envelope, or he might not. In any case it is a haphazard method. But if that salesman had to make a report at the end of the day about his calls this information would have gone into the company's file for all to see, remember, and act upon at the proper time several months

(TURN TO PAGE 66, PLEASE)

"Waiting for the Load"



Here's one way to get more work out of your trucks-

REDUCE LOADING TIME

A well known Chicago concern recently put on a dozen Servis Recorders. Then they got a big surprise. The Recorders showed that their trucks were standing an average of a little over two hours a day at their own loading platform! Nobody had noticed it much. But when this delay showed up plain as day on a Servis Recorder chart they lost no time in reducing this to less than an hour per day, and in that way alone saved over \$5000 a year!

This chart shows up all delays.

Here's a stop of 2 hours!

THE SERVIS RECORDER
"Keeps Trucks Busy"

The Chart Shows It Up

Thousands of trucks are still wasting time in this way because nobody realizes the extent of the waste. Because some of this standing time is unavoidable and therefore legitimate, the tendency is to overlook it altogether, or to "do nothing about it" for a while. But the Servis Recorder shows up this waste; also shows all delays en route—as well as overtime, speeding, use of truck at night, etc.

SEND FOR FREE BOOKLET - "Ten Ways of Getting More Work Out of Motor Trucks."

THE SERVICE RECORDER CO.

1422 Euclid Avenue · Cleveland, Ohio

BUYERS, IN

New Streamline Whites a



ALL LINES OF BUSINESS, AGREE . . .

are Lowest Cost Trucks IN AMERICA TODAY

AS FAR AHEAD IN PERFORMANCE, ECONOMY, RUGGEDNESS, SAFETY AND LONG LIFE AS THEY ARE IN STYLE AND ADVERTISING VALUE... THESE NEW WHITES ON THE BASIS OF VALUE OFFERED, SHOULD BE PRICED \$600 HIGHER!

• The best, most expert, longest experienced army of quality truck builders in America is working in night and day shifts, to meet the demand for the greatest White Truck in 35 years.

Built to give you the lowest cost truck in America today... operators in all lines of business, by their orders, agree that the new streamlined Whites meet our difficult goal.

The highest White quality in history can now be bought within a few hundred dollars of the very lowest priced trucks. White lower operating cost soon offsets the first price differences and White quality assures you of economical life after cost records show that it is time to take cheaper trucks off the road.

Some buyers want the advertising value in the new styling by Alexis de Sakhnoffsky . . . others prefer conventional type bodies—but all need the great value in the White-built Pep-Head

270-inch engine, the heat treated steel throughout, extra rugged axles and frame, 4-wheel booster operated hydraulic brakes, screwed-in stellite valve seats, the comfort and accident reducing advantages of the automatic air conditioned cab.

Investigate the new Whites in terms of your own truck requirements. See them at your nearest White Factory Branch or Dealer or telephone for a demonstration. Liberal terms can be arranged. The Model 703 is priced at \$1240, chassis at factory. A few desirable dealer franchise opportunities are still available.

MODEL 703 . . 1-1½ TONS MODEL 704 . . 1½-2 TONS MODEL 704A . . 2-3 TONS MODEL 709 . . 2½-3 TONS MODEL 709A . . 3-4 TONS

THE WHITE MOTOR COMPANY . CLEVELAND

(CONTINUED FROM PAGE 63) hence. I know that truckmen do not usually keep this sort of records because I have seen them miss too many opportunities to call back for business which they were informed would probably move later on.

There are several systems that might be adopted for the purpose of controlling, charting, and planning calls. After all, really effective selling is not necessarily that which gets the business on the first call. It is quite as much the persistent, consistent—but not insistent—calling on the right companies, at the right time, with the right appeal

for each. Salesmen are scouts as much as they are advocates. The information they can obtain in casual conversation with shippers will often lead to business that was never heard of before. Of course, much of the success of call control will rest with the men who make the reports. If they are not clever in handling the interview and energetic in reporting it the plan will fail of any worthwhile results. Moreover, the reports are not just for reference; they are "tip" sheets, ammunition for future battles, and experience records upon which to base future calls.

Some railroads engage in a practice

that truckers might profitably adopt. This consists in going over their billings at regular intervals to determine whether any of their steady customers are appreciably reducing the volume of freight routed via their line. Sometimes they even single out one regular movement of freight that has ceased to move over their line. In such instances one of the road's officials will write the industrial company's traffic manager and express surprise and disappointment at this loss of freight. Usually it is a clever letter, offering to adjust any dissatisfaction the shipper may have experienced toward the railroad, and urging that their long and fruitful association be continued. Such action has often saved a shipper,

Three more points seem of sufficient importance to justify these few concluding remarks. One of these is that it will not pay a trucker to take on a salesman merely because he has a few contacts that are productive of business, unless the man can and will continue to sell to other than these "contacts". Even assuming the contacts are productive of business the man's value is limited and soon dissipated. In that case you will have to let him go. If you do that he will endeavor to take the "contacts" with him to a competitor. Whether he succeeds or not the circumstances will leave a bad taste in the shippers' mouths.

DON'T allow your salesmen to make promises as to rates and services on their own initiative. As a rule, if he cannot obtain business with the rates and services you have set up as fair and equitable, then it is unlikely you are going to profit from business obtained through departures from such rates and services.

Finally, don't knock your competitors; shippers have become antagonistic to truckers who drag in their feuds with other motor carriers. There has been much of this sort of thing and shippers just don't give a damn. If you are out to "show up" a competitor the only way the shipper is interested in having you do it is through superior service. Do it this way or not at all. Remember, every time you run down a rival trucker you are injuring the industry of which you are a part.

Above all, remember this: (as per the Eastman report) there are 5,000 multi-car shippers, 11,000 large shippers, 84,000 average shippers, 115,000 transient shippers.

One-half of the total freight shipped is done by about 5,000 shippers.

Thus, the final "don't" is this: Don't say you don't know where to look for business. The above figures say, in effect, "Come and get it!"



Keep Costs and Beat the 'Rap'

(CONTINUED FROM PAGE 24)

Each truck should have its own costs tabulated and recorded. Then, too, the cost records should be in such form that they reveal just what it costs per mile to operate each vehicle and what it costs per mile for such things as oil, gas, tires and wages. The costs should also be tabulated on a basis of costs per month per vehicle and the accumulated costs per vehicle for the year to date.

Keeping records of this kind involves the use of special printed forms. For example, it is advisable to use a daily motor vehicle report. This should contain such information as the number of the vehicle, its type, tonnage, the hours it was used and the miles traveled, together with a description of the work this unit performed in that one day. This card should also contain any notation of tire changes and their costs. The reverse side of the card may contain information on the amount of oil and gasoline used, costs of repairs, repair material used, washing, greasing, etc.

In this way you will have a complete daily report on the variable costs of operating each truck. Each month these charges can be posted on another card and charged against the truck. In addition, this other card will contain space for such other charges as de preciation, taxes, licenses, wages and insurance.

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AT the end of each month you can have this material posted from the individual cards for each truck to a master sheet which will give you a complete record for the entire fleet. The

AVERAGE OR APPROXIMATE COSTS

Based on all makes of trucks, these averages are offered merely for use as a general guide, when more accurate costs are unobtainable.

| | | Trucks | Trailers |
|-------------------|-----|------------|-------------|
| Taxes and License | \$. | \$25-\$400 | \$25-\$250 |
| Insurance | | 40- 300 | 10- 225 |
| Repainting | | 50— 300 | or more per |

DRIVER'S AND HELPER'S WAGES

| Gross Vehicle (Weight Lb.) | Up to 100 Miles Daily | 100 to 200 Miles Daily |
|-------------------------------|--------------------------|---------------------------|
| 4,000-10,000 | \$4.00—\$4.50 | \$4.50-\$5.00 |
| 10,000-16,000 | 4.50- 5.00 | 5.00- 6.00 |
| 16,000-24,000 | 5.00- 5.50 | 5.50- 7.50 |
| 24,000-35,000 | 5.50- 6.00 | 6.00- 8.00 |
| 35,000-50,000 | 6.00- 7.00 | 7.00- 9.00 |
| 50,000-60,000 | 6.50- 7.50 | 8.00-10.00 |

GARAGE OR STORAGE COST

Truck or Tractor only... \$50—\$180 per year Semi-Trailer or Trailer.. \$60—\$150 per year master sheet we use in our fleet each month contains the following information:

The number of the car, the date it was installed or placed in use, its size, its make and its type. Then we have a record of repair costs for the current month and for the year to date, and a record of tire costs both for the current month and for the year to date. Next is a record of the days the truck was run, the days it was idle and the days it was in the shop during the month, together with the miles run per month, the miles run per day, the gasoline used, the miles per gallon, the oil used and the miles per gallon. Other columns contain room for performance data, such as the number of gallons delivered per month and per day and the total number of loads per day, followed by another column which shows the mileage from the date of the installation of the truck to date. A final column is open for memoranda and explanation of any figures which require explanation.

This report gives us a complete picture of our operating cost per truck, together with important data on its record of performance during the month. Such a report as this can be rendered according to cities, divisions, classes of trucks, types of operation, ages of trucks or sizes of trucks.

But, you ask, why all this "paper work"? Is it worth while? Does it pay you to do it? The answer is that it most certainly does and I'll explain why it does and why it will pay you, too.

These cost sheets tell a story which we could get in no other way. Suppose, for example, we want to know whether we should use two small units or one large unit for a certain type of operation. We go right to our records and see what the two small units in a type of operation comparable to that in question have cost us to operate. We find out what gasoline mileage they are getting. We see how repair costs have been. We note the number of gallons of oil delivered, the loads per day and the fixed charges such as insurance, licenses, etc. We then pick a heavy unit which has been

200 to 300

in comparable operation, and, on the basis of similar figures, we draw our recommendations. In this way we are able to find out beyond any doubt just what types of vehicles are fitted to certain types of operation.

Or suppose we contemplate the purchase of new equipment of a certain type. We go to our cost figures to see what the old equipment cost us and, on the basis of our cost analysis, we determine whether or not we need new equipment. Frequently our cost records have proved to us that it is more economical to retire certain pieces of equipment than to continue to operate them.

Again, our cost records tell us whether we are getting most out of our various units, whether our drivers are working at peak efficiency, whether the trucks are burning too much oil or using too much gas. They reveal at a glance the number of days the trucks are idle, the number of days they are in the shop and the number of days they are working. Suppose, for example, we have assigned ten trucks to a certain section of our territory. The natural tendency of the manager of that division to have more trucks than he requires rather than fewer trucks. Being human, he will encourage the use of a surplus truck. Our records, however, will prove without question whether an extra truck is needed.

IN purchasing new equipment these cost studies are invaluable. They tell us at a glance just what types of trucks have been of the greatest use in given sections and in given types of transportation. They prove to us conclusively that pneumatic tires cut down our costs and added materially to the life of our trucks. Time and again study of these records has revealed excessively high fuel consumption, too little use of the truck, poor tire mileage or high repair costs and has led to investigations to discover the reason for these faults. Consequently we have often been able to effect changes which have promoted economy or efficiency.

The reason for this is more or less (Turn to Page 71, Please)

GASOLINE, OIL, TIRES AND MAINTENANCE

| Miles Daily | | Gas. | Oil | Tire Cost | Maintenance |
|-----------------------------|-------------------------|-------------------|-------------------|------------------|------------------|
| \$5.00—\$6.00 6.00— 8.00 | Gross Vehicle Weight | Mileage M.P.G. | Mileage M.P.G. | Cents Per Mi. | Cents Per Mi. |
| 7.50—10.00 8.00—11.00 | 4,000 6,000 | 14-10 | 350-500 | .003009 | .008020 |
| 9.00—12.00 | 6,000-10,000 | 12- 7 | 300-475 | .005012 | .010025 |
| 10.00—13.00 | 10,000—16,000 | 9 5 | 300-450 | .007020 | .010032 |
| 10.00 | 16,000—24,000 | 7-4 | 275-425 | .015027 | .015040 |
| | 24,000-35,000 | 5-3 | 250-400 | .022040 | .020050 |
| | 35,000-50,000 | 4-2 | 225-375 | .035070 | .025—.057 |
| | 50.00060.000 | 3- 11/2 | 200-350 | .060100 | .030062 |

BAR-REINFORCED TIRE CHAINS

Fleet Operators Get Double the Mileage and Double the Safety When They Equip Trucks with These Better Tire Chains

● Double the mileage—on short or long hauls—because of the tough, case hardened, double welded Bar-Reinforcing!

Double the safety because the Reinforcing Bars dig into sleet covered highways and insure safe traction in snow or mud!

This is what Bar-Reinforced Tire Chains give you over and above what you get with ordinary tire chains. Their longer life dictates their use from the viewpoint of cost. The greater safety they provide absolutely warrants their use when you consider cargo value and the life of your driver and the general public.

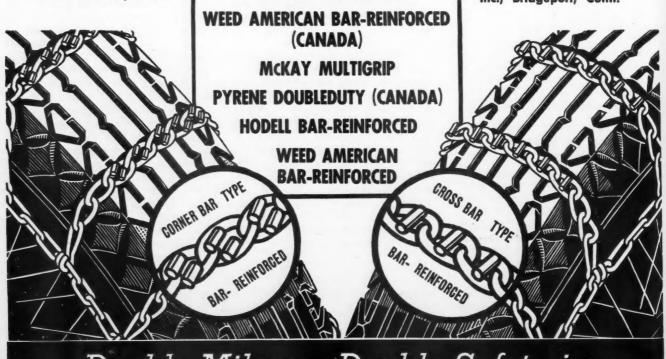
Bar-Reinforced Tire Chains are better, safer, longer-lived chains because of these five features:

(1) Reinforcing bars dig in like cleats on a tractor. (2) Project well above the level of cross chains, reducing side skids. (3) Provide double the wearing surface. (4) Are double welded and can't come off. (5) Are case hardened to maximum toughness.

These six leading tire chain manufacturers have been licensed to make and sell Bar-Reinforced Tire Chains under thirty-two United States and Canadian Patents. They are offered under the trade names listed on this page.

Pyrene Manufacturing Company, Newark, N. J.; Dominion Chain Company, Ltd., Niagara Falls, Ontario; The McKay Company, Pittsburgh, Pa.; Pyrene Manufacturing Company of Canada, Ltd., Toronto, Ontario; Chain Products Company,

> Cleveland, Ohio; American Chain Company, Inc., Bridgeport, Conn.



PYRENE DOUBLEDUTY

Double Mileage, Double Safety in BAR-REINFORCED TIRE CHAINS!

(CONTINUED FROM PAGE 69)

obvious. Suppose your cost for an entire fleet is four cents a mile. You would probably be pleased with such a low figure, even to the point where you were congratulating yourself on it. Yet, one truck in your fleet might be costing you more than five cents per mile. If you merely grouped your costs you would never know that this one truck was raising your average costs for the entire fleet. Or, looking at it in another way, one particular type of truck might be the most economical in your whole fleet. The use of this type exclusively might be the answer to your problem. Yet, unless you had your operating costs broken down by individual trucks, how would you know this was the case?

W ITHOUT adequate data of this nature it is impossible for fleet operators to know when to dispose of old trucks. Every large operator knows that the cost per mile of an average truck is high when it is new, due to the low mileages obtained, that it then decreases as the vehicle mileage increases, following which it then reaches a very low point. Then there is an increase in the cost per mile, due to an increase in its maintenance cost as the truck gets older and requires more repairs, consumes more gas and oil and starts to deteriorate. Beyond this point, then, it is wise to consider replacing the unit. If you keep adequate cost records you will be able to watch this cost curve and schedule the replacement of your trucks before any actual breakdown occurs. Moreover, such records will permit you to determine which trucks have a higher total cost and to place them in operations which do not tend to increase the total costs.

Many fleet operators want to know how they can anticipate their costs of operation.

The variable expenses can only be estimated on the basis of the operator's experience with trucks of a similar type in operations comparable to those in which the new units will be operated. This is another reason for keeping accurate cost data. Knowing, for example, what it costs us to operate a five-ton truck delivering fuel oil in suburban New Jersey, we can figure in advance, with reasonable accuracy, just what it will cost us to operate another five-ton unit in the same type of work in a section comparable to suburban New Jersey.

Using these factors as a guide, the operator should keep in mind that operating costs on new units are usually lower than on the older units, due to the fact that each year trucks are made better, have more improvements

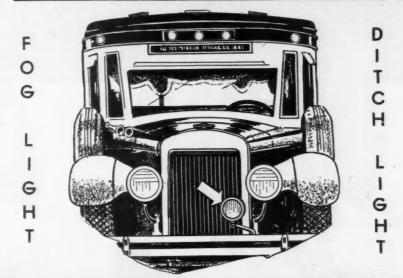
and incorporate in their manufacture features which contribute to their lower operating costs.

To estimate approximate operating costs of a truck the operator should consider the type of truck, its estimated life in years or miles, its total weight, the interest on his investment, insurance, taxes, licenses, wages, garage and administrative overhead. This presupposes, of course, that he has previous operating cost information to guide him. If he lacks such information he can rely on the recommendations of truck manufacturers provided, however, he considers their source.

The truck manufacturers make reliable estimates of operating costs which are available to prospects.

The Reo Motor Car Co. made, some time ago, an interesting study of the approximate costs of motor truck operation, based upon all makes of trucks. This, in my opinion, has a great deal of merit. It can be used as a guide, but as a guide only. There exist too many variables for anyone to use such a necessarily generalized estimate of costs as an accurate indication of what their own operating costs will be. See page 69 for this tabulation of costs based on all makes of trucks.

DIETZ FOG LIGHT .



FOR MOTOR BUSES AND TRUCKS



DIETZ Ditch and Fog Lights put a brilliant flood of light on the spot where drivers need it most to avoid accidents on dark and stormy nights—low down, right on the edge of the road.

As a Ditch Light, fitted with white fluted lens, and which may be set to point in any direction, the gutter, side of road and curves ahead are flooded with a powerful beam of light. With amber fluted lens, the offending rays that cause blinding glare from an ordinary lamp in fog or snow storms are intercepted and neutralized, enabling a driver to progress with clearer vision and safety.



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Your dealer can meet your requirements in Dietz Ditch and Fog Lights. You should also have our complete Catalog of Motor Lamps and Accessories. Let us send you one.

R. E. DIETZ COMPANY

NEW YORK

Pioneer Makers of Motor Lamps

LIGHT WHERE DRIVERS NEED IT

HEAD LIGHTS . TAIL LIGHTS . MARKER LIGHTS . DITCH, FOG & SPOT LIGHTS . DIRECTION SIGNALS
TRUCK FLARES . REAR VISION MIRRORS . FLOOD LIGHTS . CATAPHOTE REFLECTORS . FIRE EXTINGUISHERS

RNAL

THE WORLD'S MOST
DEPENDABLE BRAKE
becomes the
universal control

LIGHT HEAVY

The marked advantages of Bendix-Westinghouse Automotive Air Brakes are no longer confined to the heavy motor vehicle. Though comparatively young in the field, this same genuine Air Control is rapidly becoming a factor in the safe, efficient, economic movement of the lighter commercial carrier. Featuring a natural dependability plus many exclusive advancements in safety and economy Bendix-Westinghouse

Air has, by sheer force of its day-in and day-out performance, become the universal control for all types of commercial units... And now, since genuine Air Control is available in kit form for lighter vehicles as low as \$139.* (completely installed) there no longer remains a reason for anyone to be satisfied with less than the Bendix-Westinghouse standard of brake protection. Your request for information is welcome.

*Prices slightly higher in Canada and foreign countries

BENDIX-WESTINGHOUSE AUTOMOTIVE AIR BRAKE COMPANY . PITTSBURGH, PENNA.

COMMERCIAL CAR JOURNAL

Driving With Death

(CONTINUED FROM PAGE 17)

takes care of his health. That's one thing that keeps Louis at the wheel going night after night out to pipe lines where there are practically no roads. An "explosives" truck driver must have a strong constitution, strong enough to resist sleep when other men would be half dead for it. When slender, blackhaired, olive-skinned Louis yawns in the big red truck stealing through the black Texas night, he thinks of his little 14 months old baby and his pretty young wife back in the cottage on Cain Boulevard in Dallas, and dares not close his eyes.

4. He must be a good mechanic. When Louis is not on the road, he is servicing his operator's trucks. Every tire, every light, every mechanism about the truck must be in perfect operating order.

order.

"THEY can't take any chances on breakdowns," said Joe Baldwin. "Two men go along in case anything should conceivably go wrong with the truck. One has to stay with the explosives while his comrade goes about getting done whatever he finds necessary."

"Hey, pal, need any help?" is a courteous offer from passers-by that the "soup" truck driver has to reject.

"I found one of the huge red nitro trucks with a flat tire one day," said W. L. Clary, shoe buyer for the A. Harris & Co. department store in Dallas. "'Want some help with that tire?' I asked stopping. You should have seen how fast the driver shoo-ed me away. You would have thought that I had leprosy. He said they couldn't accept help from anybody."

Up Wichita Falls way, there are a dozen or so haulers of nitro-glycerin, but their vehicles are converted passenger cars, mostly Cadillac coupes with a special box, divided with exact spaces where the cans fit, or a 600-lb. tool rack which divides the life of the

car by two.

BECAUSE of the incessant demand for the explosive in West Texas where great layers of lime make it almost impossible to bring in a well without this help, nitro-glycerin ingredients (glycerin, nitric acid and sulphuric acid) are mixed in dozens of small mixing plants near oil well nests. The ingredients can be transported long distances safely enough. It is after they're mixed that they get so eager to explode. At these mixing plants, glycerin is tenderly poured into a steel tank of nitric and sulphuric acid, softly cooled the while to a non-explosive temperature by steel brine coils. Then the mixture is let down into a lead tank to stand and separate. The top of nitroglycerin is skimmed off and washed clear of acid by warm water and a soda-ash mixture. The acid goes for treatment to the acid discoveries. The nitro-glycerin is ever so gently carried in copper-tanked rubber-tired buggies to a second house where it is as delicately screened.

This mixing at various West Texas locations eliminates the necessity for such specially equipped trucks as those Louis drives, as the quantities transported need not be so large nor hauled such great distances. Indeed, daring

Pat Hunter, brother of Tom Hunter who is the millionaire oil man who has been twice candidate for the governorship of Texas, puts eight pints of "soup" on the cushioned car seat beside him, and strikes out to the well location where he shoots his brother's wells himself, lighting the fuse with a cigarette—the usual way of lighting any shot to be ignited by a fuse. A coal light is preferable to a blaze. Pat doesn't go in for the complications of a time clock. He adds another to Louis' list of qualifications for transporting nitro-glycerin.

"Good eyes are necessary," Pat said. "You not only have to watch where



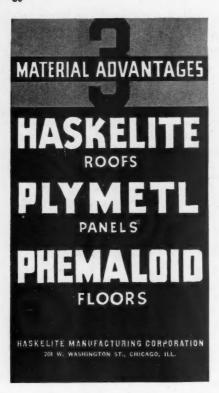
A LONELY prospector, game to the end, facing a waterless oblivion.

Is his fate different from that of one of your drivers, stuck with a broken Fuel Line at 2 A.M. in one of the Adirondacks seven mountains?

Yes!... we are glad to say,—Provide his truck... your entire fleet with genuine Weatherhead Gas and Oil-Proof Fuel Line equipment and he'll never get in such a jam! Demand Weatherhead for Safety... for Service.

THE WEATHERHEAD CO.

620-724 Frankfort Ave., Cleveland, O.



SPONGE RUBBER TRUCK CUSHIONS

as low as

SPECIAL

For operators who desire the utmost in economy our special pieced construction complete cushion is available for as low as \$4.60. All sizes and shapes furnished.

ACT NOW AND REPLACE THOSE **WORN CUSHIONS**

Regular patented Sponge-Aire Cushions also available at attractive prices. Write today, giving sizes, for prices.

SPONGE-AIRE SEAT COMPANY, Inc. Buffalo, N. Y.

FOUR WHEEL DRIVE

Converts your Ford or Chevrolet **FUL FOUR WHEEL DRIVE able** to do the job with ease where much heavier trucks fail, and at a fraction of the cost. Write

ALMA MANUFACTURING CO. **ALMA, MICHIGAN**

you're goin' but where the other fellow is headin'. It's other drivers on the highway going 60 to 80 miles an hour who give me the creeps. If one of them touched my fender or my bumper, there wouldn't be enough left of me to shake hands with the undertaker.

"OUT in this country," continued Pat, "the natives get out of our way when they see a shooter's can tied on our bumper-the kind of long, slim can you let the 'soup' down in the well with-unless they get excited and try to stare themselves into us. Some people do that, you know. A woman almost stared herself into my car loaded with nitro-glycerin one time all right. It seemed to fascinate her, and she drove right at me. I had to get clear down in the ditch before I could get her to stop.

"Another qualification a driver up here has to have is a record of no past accidents. You can't hire out to a torpedo company if you've ever had a previous accident. One accident is too many when you've got 'soup' beside you.

Pat's wife doesn't worry about him as much as his brother does. "She doesn't understand the danger of it," Pat said. "Tom does, and he doesn't want me to do it, but I don't mind it except when I'm not feeling tip-top. Then, it gets on my nerves-plenty.'

Pat carries \$20,000 life insurance, but it's ineffective while he's carrying or using nitro-glycerin. Louis Calderon can't get insurance at all. The insurance companies won't touch him. The risk is too great. One out of five truck drivers blows up each year, according to percentages. At that rate, it's a miracle that Louis Calderon is alive at all, and insurance companies don't base their policies on miracles.

W HY, then, are the waiting lists for truck drivers to step into dead men's shoes so long? Why are hundreds of strong eager-faced men waiting for a chance at fantastic death?

Because of the danger? That may be the answer for some adventurous souls, for there always have been men willing to gamble even with their lives for the sheer joy of gambling.

In Louis' case, it's mostly because the stakes are high. He not only gets a regular salary but a commission on every delivery. He gets paid on the scale of an executive, and is spared the dullness of answering telephones and meeting with directors' boards-and to Louis, that's something, for shortly after he was born in El Paso, he drifted to the oil fields, which made him restless, chance-taking and far from deskminded.

"We make a profit on the explosives,

SURE-FIRE POWER



A sure - enough light-heavy, this Blackhawk AA8.5! 4½ ton capac-ty. 8½" low, 17½" high, Handles any truck in intermediate class. Fast, reliable, with smooth, EASY lifting— like all Blackhawk Hy draulic Jacks. Ask your Jobber Salesman. Write for literature.

BLACKHAWK MFG. CO. Dest. CJ-1 Milwaukee, Wis.

ACKHAWK

ONLY **B.&J. TRAILERS**

HAVE GRAVITY SPRING SUSPENSION

> **Every Demonstration** Becomes a Sale

Write for bulletin B. & J. TRAILER CO.

3915 S. Michigan Ave. Chicago

AUTOMOTIVE FINISHES

PYROXYLIN LACQUERS SYNTHETIC ENAMELS

Ask your jobber about the new POLYCHROMATIC ENAMEL.

DITZLER COLOR COMPANY
MICHIGAN Standard in the automotive industry since 1902

(REPLACEMENTS)

We can show you a large saving on parts for your Mack Fleet. We specialize in guaranteed replacement parts for Mack trucks. Write.

UNIVERSAL PARTS, Inc. 6310 Penn Ave., Pittsburgh, Pa.



JACKSON, MICHIGAN

Stop the most stubborn spring squeak instantly. Save time and money. Drive pointed end between leaves, attach grease gun and force grease through tool exactly where it's needed.

Only Black Diamond **ALL-RUBBER** SEAT CUSHIONS OFFER ALL THESE FEATURES!



DIAMOND GRID CONSTRUCTION-An ex-DIAMOND CRID CONSTRUCTION—An ex-clusive feature that guarantees greater com-fort, longer life, and no upkeep expense. STURDILY BUILT of tough special proc-essed semi-sponge rubber that gives un-limited service.

ABSORBS ALL ROAD SHOCK with new

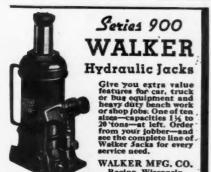
ABSORBS ALL ROAD SHOCK with new scientific principle of suspension of body-weight, giving extraordinary riding comfort. CONSTANT AIR CIRCULATION assures a cool, comfortable ride under all conditions. Seat cushions and back rests are available to fit any size or shaped truck. Secure further information and prices by writing direct to.

KARPEX MANUFACTURING CO. INDIANAPOLIS, IND.

HYDRAULIC HOISTS - BODIES

There's a St. Paul Hoist to fit every need. Distributors conveniently located in leading distributing centers . . . stocked and ready to make prompt shipments.

St. Paul Hydraulic Hoist Co. 2207 University Ave., Minneapelis, Minn.





THE McKAY COMPANY McKAY BLDG. PITTSBURGH, PA. and then base delivery charges on the distance to which they are to be hauled. and the necessity for speed," Mr. Baldwin said. "Our drivers do the selling. They have to be good mixers with rough men in the fields."

Nitro-glycerin costs the driller \$3.15 a quart. Eight to 500 quarts are required per well-except in East Texas where often a fortune of black gold is brought in without any blasting whatever. Time was in early oil field history when common road wagons with tills eight inches square, each lined with felt, transported the explosive. Now high-powered trucks designed to hold 400 quarts are cushioned and completely designed for the purpose. The cans hold two gallons or eight quarts. Years ago, in the fields of West Virginia and eastern Kentucky, the cans were padded with felt. The idea was that the felt would act as a blotter if the cans leaked. That was the greatest precaution taken in those days when nitroglycerin was hauled in wagons over rough mountain roads. With the era of placing the cans in rubber boots, the death score has been cut down somewhat. There is less jar and less leakage. Leakage is disastrous. One drop would blow a car up.

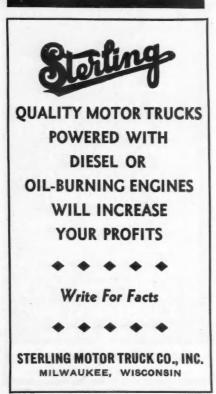
"Our explosives trucks have special clearance lights," said Mr. Baldwin, "two fire extinguishers and a body so arranged that the explosives do not come in contact with metal. All bolt heads are countersunk. In short, we aim at no metal inside. If any is compulsory, it must be brass or copper. We can use no steel, no metal that could produce friction."

EVERY precaution is taken to protect Louis Calderon. Modern nitro-glycerin drivers take as few jars as possible. The usual belief still exists that a jar causes most of the explosions, but E. B. South who has brought in oil wells with nitro-glycerin in fields all over the United States will tell you that nobody knows what causes the explosions.

"There's the case," Mr. South mentioned, "of a drunk in southern Vir-West Layton County, to be ginia. exact. He was hauling 90 quarts of nitro-glycerin over as rough a stretch of mountain as the liquid was ever hauled over when his team ran away. Not only was the wagon upset, but it was torn to pieces, and there was no explosion. The only way we could account for the fact of safety was that the liquid was so well frozen. It is always transported in a frozen form. When the shooter is ready to use it, he puts it in a barrel of hot water, turns the steam on, and then pours it. Warm it is as harmless looking as the maple syrup you pour over your breakfast







Dept.M- CRESTLINE, OHIO

waffles, and about the same color and consistency. It weighs 11½ lb. a gal.

Likewise, Mr. South has seen a sledload of 800 quarts of nitro-glycerin upset and fall into a creek without any explosion whatever. On the other hand, a few years ago, not only did a loaded truck disappear into nothingness, but dissolved another truck half a mile away into small pieces of twisted scrap iron.

Some of the most freakish accidents during the past 50 years have been caused by this powerful explosive. The freakish discoveries after a cyclone has hit town are no more mystifying, if as strange, than the results of nitro-glycerin "actin" up."

There's the instance during the wagon-era days when a driver and his stock blew up because, it was believed, the nitro-glycerin had leaked down on the springs of his wagon.

"The driver had taken his wagon to Little Washington and Waynesburg," Mr. South related. "I was sitting in a hotel ordering my supper when the explosion occurred 12 miles away on the National Pike between Washington, D. C., and Wheeling. The wife of the driver happened to be sitting at the table behind me. We heard a rumble, and all at once, the woman shouted, 'My God, there goes Sam!'"

All that was ever found of either the wagon, team or driver was one of the man's shoes stuck in the gable of a house.

Louis sees that side of the picture while he's driving his truck along the crude East Texas roads, and then he sees the other illustrated by the case of Jim Green.

Jim Green was one of the smart ones who quit the game alive. He made enough money in one year to pay for eight years of expensive medical school, and then he stopped. Dr. Green, now a practising surgeon in Tulsa, Okla., "made his" along about 1917-1918 in the Burkburnett and Ranger fields. His four years of pre-med work at a State university and four years of intensive training in the famous Johns Hopkins medical college were all paid for with one year of transporting nitro-glycerin.

An early retirement is still another dream that leads Louis Calderon by night into the seats of red explosive trucks—if he is still alive to retire in a few years. Perry Fouty, a truck driver and shooter for 15 years for the Hinds Torpedo Co., was ready to retire at 45 years of age. He had bought a fine farm in Ohio. The house had a wide veranda, grape arbors and all the comforts a retiring man would want. Fouty was due to quit the nitro-glycerin game the first of April. It was his last well. Retirement and peace and quiet were to be his future.

For running-in new and rebuilt engines use auxiliary lubricants containing "dag"* Brand colloidal graphite.

Acheson Colloids Corporation
Port Buron Michigan

REG. U. S. PAT. OFF.

HERCULES POWER

Hercules engines, both gasoline and Diesel, have long been standard equipment on many leading makes of trucks, truck tractors and delivery units as well as urban and interurban buses, road building and maintenance equipment, industrial, oil field and agricultural machinery. Hercules provides an engineering service which includes a study of specialized power applications.

HERCULES MOTORS CORPORATION
Canton, Ohio, U.S.A.
America's Feremest Engine Manufacturer
Power Plants from 4 to 200 HP.



PER-MAX

the Permanent TRUCK FINISH

Ask for list of prominent fleets successfully using PeR-Max. We will send one pint

of black for test if you will write us giving the size of your fleet.

RINSHED - MASON COMPANY
Manufacturers of Automotive Finishes
5835-71 Milford Street, Detroit, Michigan

The last well was a wildcatter gas well at I.ouisa, Ky., and it got afire. Fouty had hauled the nitro-glycerin 150 miles. The roads were bad, and he had been four days getting there from the powder magazine. By the time he arrived at the well, all the crew had gone home except the driller.

The driller was Mr. South. "We won't waste any more time, Fouty," he said, "so we'll go right ahead and shoot the well right now ourselves."

When the men went to shoot the well, it made a little gas. Fouty had the nitro-glycerin on the derrick floor, melting it for the pouring. In pulling the bailer out, Mr. South set the well afire. There were 80 quarts of gruesome death four feet from the flame.

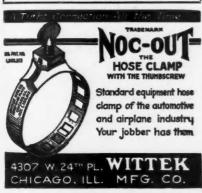
"Well," drawled Mr. South, "Fouty and I carried that stuff out of the way. We turned the steam in, and put that fire out!"

But that, unfortunately, is not all of the Fouty story. That was supposed to be Fouty's last shot, but the company wanted him to shoot one more well in that part of the country before he be-



Send for Complete Catalog
THE SIMMONS MFG. CO., CLEVELAND, O.





FLEET OPERATORS!

Investigate the new method of reducing cylinder wear and shortening time required for overhauls. These new piston rings of frictionless bearing-metal are saving truck owners big money everywhere. Write today for details.

SIMPLEX PRODUCTS SALES CORPORATION
1956 East 66th Street Cleveland, 0



THORNTON

Dual Ratio Four Rear Wheel

DRIVE

FOR TRUCKS

THORNTON TANDEM CO.

Detroit

gan raising cabbages and pigs on his country acres. It was less than two weeks after the fire. Fouty was loading nitro-glycerin at the magazine when it blew up. All anybody ever found of either Fouty or his team was a bloody horse-head half a mile away.

Still, on into the night where East Texas' thunder storms come up without warning, drives Louis Calderon. Any bump or shock may cause his truck to fly into a million bits. If a stone on the road escapes his glance, where his bright red truck has been a moment before, perhaps there will be only a large hole. If a streak of lightning finds him and his dangerous load, there won't be enough of him left to scrape up with a putty knife to put in a coffin. But Louis can't think too much of those things. It's bad psychology. Drillers are buying thousands of tons of explosives, and Louis forgets that he's young and handsome, and life is precious, for he has a smiling, curlyheaded baby to feed.

Federal

(CONTINUED FROM PAGE 39)

four-speed transmission, roller-bearing universal joints, 6.00/20 truck-type balloon tires and cast-steel wheels. Dual rear tires are furnished at extra cost.

Two Federal-built cabs are offered for the Model 10. The standard cab has a one-piece sloping windshield and there is also a de luxe cab with V-type sloping windshield. Both cabs have insulated steel one-piece roofs and are lined with plywood. The cabs have 32in. doors and have plenty of room inside. Skirts extending down to the running boards, a decorative moulding on the sides, chrome-plated windshield frame, heavy felt-insulated rubber floor mat and easy-operating window regulators are important features. Seats are of the air-cushion spring type and the backs are of high-grade spring construction padded with hair and covered with durable textile leather.

Five standard bodies are available for the Model 10. The new bodies include panel, flare-board open express, stake, canopy and screen-side types.

THE WORLD'S FINEST

ALL-WHEEL-DRIVE TRUCKS*

ARE BUILT BY

MARMON-HERRINGTON

Factory and General Offices: Indianapolis, Indiana

*The new line of Marmon-Herrington All-Wheel-Drive Ford V-8 models and the recently expanded line of regular Marmon-Herrington four and six wheel-drive units.



DAIRIES PROVISIONERS BAKERS AND MEAT PACKERS

You've already heard considerable about the popularity of Luce Mastercraft Bodies for fast transportation of food products, but in the coming year you're going to hear a lot more. Why? Because the Mastercraft principle of mass production combining individual and specialized features is the best yet.

Write or wire today for further information how Mastercrafts can earn more money in your line.



MASTERCRAFT TRUCK BODIES

DEPENDABLE

If you want air-brake deleast Cornoration. Michigan City, Indiana, for literature describing this new
husky wiper that
slashes through
clotted mud or
snow with the
100-lb. kick of
the air-brake
supply behind it.



AIR-PUSH

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WORN BEARINGS Cause OIL PUMPING

Today, in thousands of fleet maintenance departments, it is definitely known that worn connecting rod and main bearings are a principal cause of oil pumping. And it has become standard practice to check the bearings when an engine is opened up to correct excessive oil consumption.

New rings, pistons and cylinder reboring do their part in oil control, but when worn bearings are the cause of oil waste, the bearings themselves must be replaced to assure complete correction.

Make it regular practice to check the bearings on oil pumpers. If worn, replace with Federal-Mogul slip-in bearings or with rods babbitted by Federal-Mogul. They are engineered products, mechanically and metal-lurgically right for the job of oil control!

FEDERAL-MOGUL CORPORATION • DETROIT, MICH.

Operating Watkins Babbitting Service

FEDERAL-MOGUL LINE Cadmium-Silver-Copper-Lined Bearings • Bronze-Back, Babbitt Lined Bearings • Steel-Back, Babbitt-Lined Bearings • Piston Pin Bushings • Connecting Rod Service • Connecting Rod Bolts and Nuts • Bearing Anchor Screws • Laminum Shims • Solder • Bronze Bars and Babbitt Metals

AND NOW EVERY OPERATOR CAN HAVE

well ventilated truck cabs at small cost with

N-L VENTIL

N-L Flexible Ventilators

• Unlike the N-L Ventilating System which is built in, the N-L Flexible Ventilator can be easily added after the truck is built. This system removes the foul air and creates a constant circulation of air in the cab, without drafts, while the truck is in motion. It increases alertness of your drivers.

As the name implies, this ventilator is flexible-made of pure rubber and fits the roof curvature. It comes plain or equipped with three safety lights. Absolutely weathertight. A unit that saves hundreds of dollars, yet costs but few.

N-L Ventilating Systems

• The intake draws in fresh air above the windshield and deflects it downward into the cab. It is absolutely weatherproof-rain cannot enter. The exhaust-on the roof -ejects the used air and assures circulation without drafts.

This system is highly efficient and although but recently brought out has already been selected as standard equipment on White trucks. It is extremely reasonable in cost. Use the coupon to get quotations and full particulars.

The NICHOLS-LINTERN

7960 LORAIN AVENUE



Trucks Can Be Modernized

(CONTINUED FROM PAGE 33)

needs. A style of letter that might have been impressive on a 12-ft. truck is still used for one twice as long. The conception that the logotype (a particular style of lettering) is inviolate, the idea that a style of letter once used must always be used so as not to disappoint the dear public, has long since been abandoned by advertisers. But fleet owners still worship this fetish. Although most logotypes are difficult to read and almost none can be adapted

to anything larger than a letterhead. This, in part, explains why there are so many ordinary, if not downright ugly, trucks.

IT must be obvious at once that the line-up at loading platforms presents an entirely new medium for advertising of the best kind, advertising that reaches its market as intensively as newspaper, magazine or poster, that commands respect for product and organization and that builds morale. The truck, whose major purpose is transport, can at the same time be converted into a moving poster and as

such must be designed like any other area devoted to advertising. Unfortunately this field of design seems to have been left years behind its more aggressive cousins, the printed page and the poster. When we stand on a street corner today we are conscious only of great lumbering machines so painted as to be indistinguishable, so lettered as to be illegible, so poorly planned as to leave no impression except of noise and size.

AT Container Corp. we have recently been concerned with this problem. We have a fleet of about 130 trucks and trailers of which perhaps not more than 35 are really good-looking according to our modern conception of automotive design. Not only do they range in age from one to 12 years but they are of 15 different makes. This is a typical fleet and is described in detail because it means special study for the designer. If equipment is kept in first class running order, it should last 10 or 12 years. Our transportation manager points with pride to the wellcared for motors under the hoods of these units.

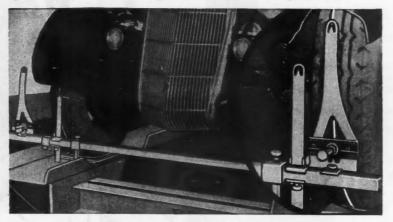
Now color is a kind of language or, rather, a type of symbolism. The traffic lights are well known examples of this. The dairy companies with their white trucks are perhaps the oldest users of color as a symbol and the fire departments have quite logically used red. We seem to have stopped there, unless we include taxicabs which are yellow, chosen for visibility, an important feature of taxicab merchandising. The average person will be able to recall few other logically chosen colors. The Brewster greens and royal blues are dignified and stately and do very well for some department stores. They are practical, too, and can be readily patched when scratches appear. If, however, we are going to make our trucks serve as advertisements we must choose color as we choose our advertising language.

AT Container Corp. we laid down four requirements for our scheme. It must have (1) dignity, (2) symbolism, (3) individuality, (4) adaptability to many sizes.

Dignity is an invariable characteristic of monochromatic harmonies. Black and gray, deep blue and light blue, dark green and light green, are well known monochromatic harmonies. We chose tan and brown to help us symbolize our business. Tan is the color of our solid fibre and corrugated board, two of our principal products, and is therefore easily associated with our company. Brown was added for the sake of heightening the effect of the

for Safety and Economy many fleet owners check frontend alinement every 1000 miles

Bear Master Camber and Toe-in Gauge No. 25 provides a quick, easy check on important front-end angles.



The only gauge that checks BOTH camber and toe-in from center line to center line on both wheels at the same time. Accurate—fast—easy checking dials graduated in degrees and inches—true as a die. Fits all cars, trucks and buses.



Correct wheel and steering alinement is one of the principal factors in preventive maintenance of truck and bus fleets. Alert operators are checking front-end geometry at every inspection period—with Bear Master Alinement Gauges. Bear gauges are fast and accurate—the standard of alinement practice in the country's leading shops.

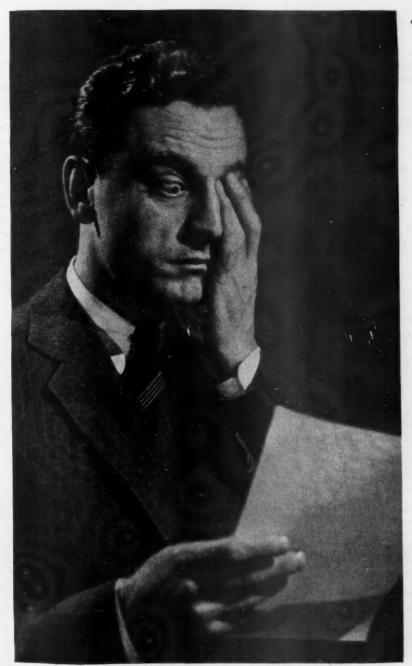
Proper front-end maintenance not only assures greater driving safety but also delivers great savings in tire life, gas and oil consumption.

Equip your shop with Bear. Write today for catalog and prices. Bear Mfg. Co., Rock Island, Ill.

HELP MAKE THE HIGHWAYS SAFE

BEAR EQUIPMENT INCLUDES: WHEEL ALIGNERS >> FRONT-END MACHINES >> AXLE PRESSES >> FRAME STRAIGHTENERS >> WHEEL STRAIGHTENERS >> ALINEMENT RACKS ALINEMENT GAUGES >> WHEEL BALANCE STANDS AND LUGS >> SPRING RE-ARCHERS >> TIRE SPREADERS >> CASTER SHIMS AND MANY OTHER ALINEMENT TOOLS

I looked at Oil Costs with one eye



GULFLUBE MOTOR

GULF REFINING COMPANY, PITTSBURGH, PA.

HAD it sized up this way: a bus uses lots of oil; might as well feed it cheap oil and save the difference.

"I was as wrong as the farmer who fed his horse shavings instead of hay. The horse died. My buses didn't, but they ran up maintenance costs that looked like a Chinese War Loan.

"I investigated these costs and maybe you think I didn't uncover some facts about oil that opened both my eyes.

"Retarded oil flow due to sludge was causing insufficient lubrication and too much wear on my motors. Free carbon was clogging oil lines and bearings and even causing serious abrasion. My oil was also giving up' too soon . . . getting thin as tea, and about as useful.

"A Gulf representative had me change to Gulflube. Here's the story that sold me:

"Gulflube is the only premium quality oil in the world that sells at a quarter a quart.

"An entirely different refining method the Multi-sol Process-employs solvents which flush Gulflube clean of 'troublemakers.' The carbon, sludge and wax-forming elements are practically weeded out.

"Gulflube has a high viscosity index thins out less under heat . . . yet runs free in zero weather. Its film strength is high. And it's a pure mineral oil that won't corrode new alloy bearings.

"In mileage tests, Gulflube outclassed every regular priced oil on the market. This mileage, I understand, has been stepped up another 20 or 25%.

"Today, I wouldn't think of using any other oil in my buses."

If you are a fleet owner, Gulflube has an interesting money-saving story for you, too. The coupon below will bring you a truly eye-opening visit

from a Gulf representative.



| 3800 Gulf Bui Gentlemen: | ING COMPANY CCJ—1-36 ilding, Pittsburgh, Pa. |
|-----------------------------|---|
| | e to get the complete money-saving lube. Will you please have a Gulf |
| representative | call on me(please fill in date bere) |
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| Name | |
| Name | |

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tan, for it is the same color, lower in the scale, and so gave us an effective monochromatic harmony. We also liked the brown on fenders and chassis for its darkness in places that would be subject to abuse.

Of the lettering we required legibility and attention value. White is the greatest reflector of light, hence we could choose stronger for this purpose and besides it looks well with any color. The style of the letter practically developed itself. We wanted the name large but there are four words, of which two are very long. The photographs show how these requirements affected the lettering. The long brown band directly under "Container Corporation" is an attempt to carry back the roof line of the cab and to distract the attention from the great difference in height between cab and trailer. The trade mark is treated in simple poster fashion and centered so that it will look well in a panel of any length. As for adaptability to various sizes, the design can be condensed or extended like an accordion without losing its proper relation to the area involved. When we had developed each of these steps in a logical manner we had achieved individuality because no other truck user will ever have the same elements to be combined under the same conditions.

Truck repainting, necessary in any event at regular intervals, offers excellent opportunities for experiment in color and lettering. The old trucks are still paying their way; they can be made to look it with paint until they are reincarnated in a streamlined world.

(ED. NOTE — Fleetmen who want both ideas and advice regarding color schemes and decorations may get this aid merely by asking for it from paint jobbers and decal transfer manufacturers. Paint and decal men have the facilities for presenting complete plans for redecorating your trucks along modern lines.)

Hoosiers Handle Safety

(CONTINUED FROM PAGE 22)

In addition to this work within the industry promoting safety, the association has directed considerable attention to supporting officials in departments having to do with truck regulation, highway construction and motor vehicle law enforcement in broadening their programs. We have stood for and

have seen progress in increasing personnel and equipment of state police and in other departments, in improving methods of operation, in establishing increased road patrol and a new night patrol of arterial highways, in improving school bus standards and in bettering driving practices generally. The association has cooperated with Purdue University in safety conferences, with the Indianapolis News and other papers in safety programs, and with public officials generally. And these groups have cooperated with us.

SINCE winning the first ATA safety contest, our association has embarked on the second contest. For the new contest just begun, we have close to 2000 drivers enrolled by 175 participating firms. That represents a small fraction of the enrolment possible in Indiana; or of the drivers whom the industry, in its own ultimate interest, should put to work for safety. Our Indiana enrolments have been widely representative of the trucking industry in this state, however. Most significant of all as to the ultimate possibilities for good both to the public and to the industry is the fact that drivers have been qualifying for the silver button at the rate of 80 per cent.





NTRODUCTION of the Long semi-centrifugal clutch marked a notable advance in clutch design . . . an advance quickly reflected in capacity production schedules. Approval has been widespread and enthusiastic. Greater capacity, rigidity, improved cooling, and softer, livelier pedal

action have made the Long semicentrifugal clutch the outstanding clutch development of recent years.

LONG MANUFACTURING COMPANY
DETROIT, MICHIGAN

LONG MANUFACTURING CO., Ltd., Windsor, Canada
Division of Borg-Warner Corporation



CLUTCHES AND RADIATORS

RNAL

perolice ving hing ight rovbet-The Purices, ther with hese

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After Hours

(CONTINUED FROM PAGE 23)

tal entered upon the scene in the shape of the bankers, who furnished the funds, usually their own, to launch the "Clermont," finance the Camden & Amboy Railroad, or construct the cotton mills of Fall River. The System, from the beginning, was a necessary welding of commercial, inventive and financial enterprise, and so it has remained to this day. None of the three could go it alone and any two would have made slow progress without the third. Together they have placed the United States in the forefront of the nations of the world in industry, wealth and power. They have given to the people the highest standards of living and of independence of action in all history.

Now come reformers, wolfing experimentalists in the sheep's clothing of liberals, who proclaim that all this progress toward better living for all, together with the system that brought it about, must be abandoned. The American System of Enterprise, as we have known it, has outlived its usefulness, they say, and must be relegated to the ashcan. It is not clear what is to be substituted. It is clear only that freak experiment follows ghastly ex-

periment; that Supreme Court left to the body is followed by a right to the button; that experiments are counted out but failures never admitted. That Longs leap up with fantastic plans for dividing wealth as if it were an apple pie; that Townsends tom-tom a fabulous scheme for providing a superabundance of sterling silver security for the silver-haired; that Coughlins cram the ether with bellowing to regulate banks out of existence; and that messiahs of a more abundant life paradoxically base their hopes on a delirious doctrine of economic scarcity.

The price these reformers would exact is freedom of action of the individual, unconditional surrender of the "Four I's"—regimentation. It is a price that only hereditary goose-steppers, transplanted from Europe, and unfortunates, whose spirits are too damaged by the economic catastrophe to care what is done to them provided they can have food and shelter, are prepared to pay. And even the latter would hardly submit if they had their jobs once more.

WHILE the jobless and certain classes of farmers in distress or deficient in self-respect have been regimented (and organized labor has not only been let alone but petted and

pampered) the great majority of business men have continued their independent way, trying to keep the income a little ahead of the outgo. The code era interfered with their efforts, but today they are back at the task of trying to make a little money in the way they had learned during half a lifetime. And there are signs that, instead of being content to make the best of things, they intend to fight for preservation of the American System of Enterprise.

Enterprise is the word for this system—enterprise on the part of those who think up new ideas, plans and devices to make life for all more interesting, more comfortable and more useful; enterprise on the part of those who create the manufacturing system to carry out the ideas with their money, work and machines, and enterprise on the part of the selling organizations with their genius for creating satisfying and continuing a demand.

It is in the determined spirit of the people of the nation to seek constantly and unrestingly for better and higher standards of living that the seeds of self-perpetuation of the American System of Enterprise are carried. We have it within us to make them germinate. We have tasted their fruits before and they are worth fighting for.

ANNOUNCING -

- 4-Wheel Drive 4-Wheel Power Steer.
- Complete unit turns 30 foot circle.
- Capacity 10 to 15 yards.
- Speed up to 40 miles per hour.
- Unit backed by 17 years of successful 4-Wheel Drive engineering.



THE "OSHKOSH" 4-WHEEL DRIVE EARTH MOVER

Now comes the contractor's long-looked-for Utility Unit. Built for tractor service—long haul speed service—and for pulling scrapers and other equipment.

Get Our Special Earth Mover Circular

OSHKOSH

OSHKOSH MOTOR TRUCK, INC. Oshkosh, Wis., U.S.A. Service Stations Conveniently Located Throughout the U.S.A.



If other companies are using Trailers so advantageously, why can't you? If they cut costs in half why don't you do likewise?

 YOUR earnings would climb tremendously in 1936 if you could do away with all transportation expense in your business-wouldn't they?

Well, we are unable to promise you haulage without cost. But would you like to reduce your present transportation expense by one-third to one-half?

NOT UNUSUAL

If you are now using straight motor trucks, even a saving of 50% is not too much to expect when you adopt Fruehauf Trailers.

FIND OUT

It will pay you to find out just what Fruehaufs will do for you. Call us in.

We build more Trailers than any body else in the world. We've grown and are growing because we give business men the right kind of haulage equipment.

HELPFUL TO YOU

There's a way to hammer down your haulage costs - and increase efficiency, too. Practical, helpful cooperation is available whenever you're ready to talk to us. No obligation.

Oldest and Largest Manufacturers of Trailers FRUEHAUF TRAILER CO.

10957 Harper Ave. . Detroit Sales and Service in All Principal Cities

FRUEHAUFS DO COST LESS

IT'S not how much you pay for a Trailer that counts, but how much your Trailer pays you. For peak performance . . the kind of performance that puts haulage costs down to the minimum get a Fruehauf.

For Fruehaufs are engineered from end to end . . each part designed to do its particular job the best it can be done. On the road, this careful construction results in years of uninterrupted service . . freedom from costly breakdowns. Even a single breakdown thus eliminated may save hundreds of dollars.

TRAILERS BRAKE EXCLUSIVELY



 This new heavy-duty brake was designed by Fruehauf especially for Trailers. It provides utmost safety under any operating condition, any test or emergency. It cuts costs.



• Fruehauf brake spiders are the double anchor type—elimin-ating "chatter" and "torque reaction." Bronzed bushed. Note needle bearings, which assure maximum ease of operation.



protects lining and mechan ism. Drums, air furnace nickel iron, machined to 1/1000'.



• Each Fruehauf brake drum is provided with a special grease adjustment of the brakes, quickly and easily, deflector which thoroughly from the outside. No jacking up of wheels is necessary. Slack Adjusters are standard equip-ment on all Fruehauf brakes—they are a real time and money-saving feature.

''ENGINEERED ENGINEERED IN EVERY PART

TRANSPORTATION ' '-Reg. U. S. Pat. Off. ENGINEERED TO YOUR JOB

Eyeing the Service Show

(CONTINUED FROM PAGE 42)

Seiden Pneumatic Hammer

THE new Seiden pneumatic hammer recently developed by The Tomkins-Johnson Co., Jackson, Mich., is designed especially for body and fender work. This hammer operates as soon as the trigger is depressed, enabling the operator to hammer lightly with the end of the stroke, or to use full pressure. An adjusting screw regulates the intensity of the stroke.

The head of this tool is contoured to take care of either flat or crowned surfaces, and can be used equally well on



either side of a fender. Retail price \$29.50.

Dual 10 Tire

THE General Tire & Rubber Co. of Akron, Ohio, has developed a new tire known as the General Dual 10. The tread is featured by a series of thin rubber vanes or flutes instead of the conventional design. It is said that these thin vanes cling to a dry road surface giving good traction, and on wet pavements produce a "squeegee" effect which reduces side-slip or skidding.

Flush Type Handle

A NEW flush type handle has been announced by the A. I. Hansen Mfg. Co., 5047 Ravenswood Ave., Chicago, Ill. This

handle, of all steel construction, fits flush with the door, and when not in actual use folds into the cup, where it is held tight so that it cannot rattle.



The recess in the cup is $4\frac{1}{2}$ in. wide and $\frac{1}{2}$ in. deep, while the overall diameter of the handle is $6\frac{1}{8}$ in. This new device is applicable to either wood or metal doors.

Piston Ring

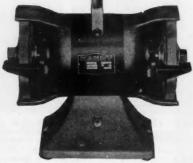
OLD GOLD PISTON RING CO. of Toledo, Ohio, has developed a sectional type piston ring using a full width genuine Swedish steel expander. The ring sections, which are all identical, are made of



"Aroloy," claimed to be an unbreakable and almost frictionless metal. This ring will function perfectly in cylinders that are oversize, and according to the manufacturer will seal against oil pumping and compression loss.

Handy Bench Grinder

THIS Handy bench grinder is powered with a capacitor-type motor which has no commutator, brushes or centrifugal switch. It will not burn out even though repeatedly overloaded, according to the Baldor Electric Co., 4357 Duncan Ave., St. Louis, Mo., maker of this unit. The grinding wheels



extend beyond the motor frame, permitting the grinding of long bars, etc.

[Other Products Page 96]

110½" cab to axle on 157"
Ford Chassis. 16 feet of load with perfect axle distribution.

The Dearborn Line

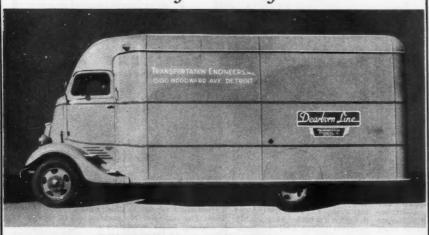
CAB-OVER-ENGINE FOR FORD TRUCKS

almost 1/2 more space!

You can use any type of body with the Dearborn Line Cab-over-Engine conversion. 16 feet is the recommended length for 157" WB, and 12 feet for the 131½" WB.

Dearborn Deluxe Streamlined Bodies offer lightness, style and strength, but most important—

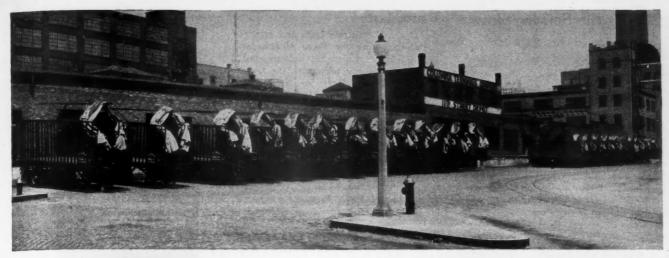
a whale of a lot of room!



Get in touch with your Ford Dealer, or write direct to us for the whole story

TRANSPORTATION ENGINEERS, Inc.
15140 Woodward Ave.

Detroit, Michigan



Columbia Terminals Co. Trailers, Spray-Painted with DeVilbiss Equipment



DeVilbiss Equipment Spray-Paints for

Columbia Terminals Co., St. Louis

Fleet owners everywhere have found from many years' experience, that DeVilbiss Spray-Painting Equipment does the job right . . . DeVilbiss Equipment produces better painting—painting that improves the appearance of your units, and affords more lasting protection. At the same

time, painting with DeVilbiss Equipment is easier, faster. Thus you save time and labor, and reduce maintenance costs... You will be interested in the latest developments in new, modern DeVilbiss Spray-Painting and Canopy Exhaust Equipment.

Spray-Painting and Exhaust Equipment—Air Compressors—Hose and Hose Connections—Oil Guns—Other Air-Using Equipment

THE DEVILBISS COMPANY · TOLEDO · OHIO

New York Detroit Philadelphia

Cleveland

San Francisco

Chicago St. Louis Windsor, Ontario

DeVilbiss

Eyeing the Service Show

(CONTINUED FROM PAGE 94)

Hy-Duty Pistons

MOTOR PRODUCTS, INC., 3350 E. Slauson Ave., Los Angeles, Cal., announces that Hy-Duty pistons are now available with ring groove depths held constant with S.A.E. clearances regardless of oversize. The skirt is slotted for the full length and heavily braced to prevent collapse. The head and skirt are separated by a slot running the full circumference, heavy trusses being used to connect the head to the pin bosses.

Drum Lathe

WITH the Riess drum lathe and grinder, manufactured by the Riess Manufacturing Co., 315 S. Union St., Kokomo, Ind., it is not necessary to remove the wheel from the brake drum for turning or grinding. Four feeds and four speeds are provided. This machine can be used as a lathe for cutting the teeth off flywheels preparatory to shrinking on ring gears, for turning pistons and armatures and for general lathe work.

Edde Flare

THE Edde Model L flares are designed to meet the need for dependable pro-

tection for a truck or bus stopped along the highway at night. Tests are said to have shown that these flares will remain lighted in rain, sleet and high wind storms. Sufficient oil capacity is provided



for 20 hours' burning. The base of the Edde flare is made of solid steel, heavily lacquered, and the burner parts are of cadmium plated steel. The Edde Mfg. Co., Milwaukee, Wis., is the maker.

Hall Suction System

TO prevent valve seat grindings getting into the motors being serviced, the Hall suction system has been developed whereby all fine particles are sucked up and blown into a closely woven fabric bag such as is used with the modern vacuum cleaner. Different styles of suction housing are available. For V8 motors a dual-type housing is furnished, which handles



four valve seats with one setting. The motor-driven fan unit with dustbag can be quickly changed from one type housing to another, so that a single outfit will take care of all cars. This equipment is being manufactured by The Hall Manufacturing Co. of Toledo, Ohio.

Paint Mixer

THE ArcoZon Production Color Laboratory is designed to supply a small quantity of paint that will exactly match the color of the truck being worked on. The machine is complete with means for agitation, pouring, gage for measuring, mechanical mixing and other devices. The Arco Co., 7301 Bessemer Ave., Cleveland.



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